

# **Pistachio, the green gold of Sicily: tourism and circular economy.**

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# **PISTACHIO, THE GREEN GOLD OF SICILY: TOURISM AND CIRCULAR ECONOMY**

*Foti Cecilia*

## **Abstract**

This Master's thesis is dedicated to my land, Sicily, a very rich island in culture, history and products, but which is not well promoted. Hence, the main objective of this work is to make to know a unique product in the world and extremely loved; this, by transmitting the main features that permit preserve it from false territorial certifications. The reference is to Pistachio of Bronte PDO, a product that in the last decades has managed to attract many tourists where is produced and be sold all over the world. The tourism around it will be analysed and will be proposed some strategies to implement it. On the other side, is important the sustainable use of a product, so the circular economy which pistachio manages to generate will be commented mentioning an innovative result already obtained from it.

Lastly, it will be presented a proposal for the design of a pistachio-themed boutique hotel to provide a source of tourism of singular character and that could get closer visitors to the world of pistachio of Bronte.

The entire work has been developed through different research tools and involving notable people and associations of Bronte.

The majority of the literature used comes from academic articles and papers elaborated by influential figures of Bronte; this has been supported by articles in official newspapers about Sicily, of the Municipality of Bronte and the tourist and cultural association "Bronte Insieme".

The aim has been also making to know to the main pistachio of Bronte associations my research with the hope, on one side, being supported and on the other side, being of support. I have received the collaboration of the Pro Loco Bronte through some written interviews, of the association Bronte Insieme which has provided me with many photos and lastly, of the Consortium of the Green Pistachio of Bronte, again, through more interviews.

Finally, in order to, to analyse the feasibility and the interest in a boutique hotel pistachio-themed, a questionnaire for possible consumers has been elaborated.

## **Pistachio, Bronte, tourism, circular economy**

## Index

### *1) A deep analysis of pistachio*

#### *1.1. History of pistachio of Bronte*

#### *1.2. Product characteristics and nutritional facts*

#### *1.3. Cultivation*

#### *1.4. Harvesting*

#### *1.5. Production process*

### *2) Preservation and protection of pistachio of Bronte*

#### *2.1. Protection of Consortium of the Green Pistachio of Bronte*

##### *2.1.1 Criteria for the use of the Green Pistachio of Bronte PDO in the labelling of processed products*

##### *2.1.2 Criteria for the use of the Green Pistachio of Bronte PDO in the labelling of processed products*

#### *2.2. PDO Certification*

#### *2.3. Quality control*

### *3) Bronte the capital of pistachio.*

#### *3.1. The geography of Bronte*

#### *3.2. The development of Bronte*

#### *3.3. La sagra del pistacchio in Bronte*

#### *3.4. Analysis of its tourism*

### *4) Circular economy and food application*

#### *4.1. What is circular economy?*

##### *4.1.1 The transition to the circular economy*

##### *4.1.2 Circular economy applied to the food sector*

##### *4.1.3 From food waste to by-products*

##### *4.1.4 The case of the start-up Kymia*

### *5) Proposal for the creation of a boutique hotel pistachio-characterised.*

*Conclusions*

*Bibliography*

*Sitography*

## *Introduction*

The aim of this master's thesis is to promote the Bronte pistachio, and the area surrounding it, by trying to convey the knowledge developed on the subject to the best of my ability, hoping to arouse considerable interest from readers. On the one hand, it aims to inspire travellers to choose Bronte and the Etna area as their next tourist destination so as to validate what will be discussed in the thesis.

On the other hand, it aims to raise awareness on resource management, particularly in the food sector, since today we are facing a framework of non-infinite resources. The aim is to spread and drive interest in the circular economy to revalue food product reuse. In this context, to further enhance the Bronte pistachio a concrete example of this circularity model is provided by the Kymia start-up project.

The entire work has been divided into five chapters trying to discuss all the aspects of the mentioned topics.

The first chapter is quite technical, in fact, it is dedicated to the analysis of the plant of pistachio by starting with a general historical introduction and botanic description. Subsequently, a description of the features of the pistachio of Bronte and its nutritional facts comes to complete the first overview. The chapter follows by examining the cultivation of the pistachio in Bronte, the way in which is harvested and the following treatment and phases to conclude the production process.

In the second chapter, the objective is to convey the idea of the uniqueness of the pistachio of Bronte, by providing the requirements exposed by the Consortium of the Green Pistachio of Bronte aimed at protecting producers and consumers. In order to provide more concrete information, the support of the Consortium has been crucial, since through a written interview has been possible transmitting the history of obtaining of PDO Certification which today represents an essential tool to recognize the provenience and the characteristics of a product.

Surely, the third chapter, dedicated to the tourism of the area around Bronte, Bronte itself and the tourism specifically related to the pistachio, represents the focus of the entire research.

In order to develop these topics, the collaboration of the Pro Loco Bronte has been satisfying since, its director, Dario Longhitano, has replied with enthusiasm to the questions of my interview about the history of the festival of pistachio, the tourism of Bronte and what it has to

offer. In addition, some photos from the association *Bronte Insieme* and the food blog *Pistacchissimo*, will be provided so that the reader could increase the wish of visiting Bronte and taste its pistachio.

The other main chapter is the fourth, related to the circular economy and how it is applied in the management of food. The importance of adopting a circularity model will be discussed specifically, in the treatment of fruits and nuts. From this, the concrete example of the revolutionary start-up Kymia which re-uses the discarded hulls of pistachio of Bronte to produce anti-oxidant face cream, will be provided. To gather precise information about the history and the development of the start-up an oral interview with the marketing director Anna Cacopardo has been conducted.

Finally, the thesis entails also a creative part which is represented by the proposal for the design of a boutique hotel pistachio-thematized. Something completely innovative for Bronte city but that could be developed. This can be affirmed since the elaboration of a questionnaire for possible consumers has been shared and the idea has been quite appreciated.

## *1. A deep analysis of pistachio*

### *1.1 History of pistachio of Bronte*

Sicily, the native land of Pistachio of Bronte, hides many stories and legends around it from the first centuries until today.

Firstly, it is important to trace a chronological route of this plant along all its story to understand its importance in each field to which is related, to interpret its transformations in terms of orthography and exploitability and lastly to find the reason why today the pistachio of a small town as the one Bronte has become so famous and appreciated.

Considering the pistachio in all its variants, it seems that for the first time, the word pistachio appeared in the Old Testament and later in the Genesis; specifically, the word seems to be linked to a well-known episode of Jacob, where this sentence is pronounced: <<Behold I have heard that there is grain in Egypt. Go there and buy for us ... Bring as a gift to that man the choice of products of the land: balm, honey, resins, laudanum, almonds and pistachios.>> (Old Testament, Genesis, chapters 42/43, verse 11).

Going on with the history, a reference to the ancient Eastern populations of Assyrians, Greeks, Jordanians, Persians and Babylonians can be done; in fact, it was during the Assyrian times that the word appeared again, recorded in the obelisk (commemorative monument, erected by Ashurbanipal I<sup>1</sup>, in the city of Kolach).

Nevertheless, pistachio plants were already quite known by Eastern populations<sup>2</sup> as the whole Middle East was attending to a its great growth.

In Persia, pistachio had great significance due that was the most favourite food of Queen Sheba to the point that she decided to cover all her court with its production being so, always at disposal for her court and herself. Furthermore, pistachio brought a relevant improvement to Persia as it was discovered that could prevent man infertility.

In Greece, pistachio appeared only after the conquests of Alexander the Great (334-323 BC) and there, it was considered as a medicinal drug, a powerful plant able to heal and alleviate different types of pains, also it was used as a formidable aphrodisiac and as an antidote against the bites of poisonous animals.

<sup>1</sup> King of Assyria, around 668-626 B.C.

<sup>2</sup> Babylonians, Assyrians, Jordanians, Greeks.



A curious fact is that in that period the word pistachio did not exist, but those populations used to call this plant "*fostak*" or "*fostok*" while the Persians "*fistij*"

Further references to the history of pistachio are linked to Pliny the Elder who mentions in '*Historia Naturalis*' Lucius Vitellius who introduced around 20-30 A.D. the plant to Spain and Italy afterwards the Roman conquests during the rule of the Roman Emperor Tiberius I. In that same period, the pistachio plant also spread in Italy, precisely in the region of Liguria, Apulia, Campania and Sicily.

Another step in the history of pistachio is linked to the spread of Islam and the Arab expansion towards Italy mainly from Syria.

Going on for some centuries, finally, around 900 A.D. the Arabs landed in Sicily, more precisely in Marsala, so their domination (827-1060 A.D)<sup>3</sup>, (Belhadj, 2008) in the island started and significative cultivation began.

It is well-known today that the Sicilian pistachio is linked to the Etna area, where there is the town Bronte; nonetheless, until the XVII century, there is no historical indication on the presence of the pistachio in the territory of the Etna and it is supposed that the first diffusion of pistachios in Sicily happened in the provinces of Agrigento and Caltanissetta.

Anyway, the word "*fastuca*<sup>4</sup>", indicating the pistachio, only appears in some books dating to the mid-XVIII century. The Arabic names "*fristach*" and "*frastuch*", respectively for the fruit and the plant, show still today some traces as in the Sicilian dialect the words "*frastuca*" and "*frastucara*" are used mainly in the Bronte area. This is due to a transliteration since the sound of the "p" being missing in the Arabic language is transformed with the "f" (Belhadj et al.,2008).

Hence, it can be affirmed that thanks to the Arabs who found a favourable climate and territory on the slopes of Etna that today Sicily has such an extraordinary patrimony.

It is exactly in this volcanic soil rich in minerals that permits the production of a special and unique fruit characterized by a singular aroma, taste and quality appreciated today by all over the world. In this way, the Etna's lava flows are transformed into an unusual paradise of plants of emerald green colour.

<sup>4</sup> The word "*fastuca*," a synonym for pistachio, appears for the first time in the "*rivelo*" of Bronte of 1747 - "ASP deputation of the kingdom," which also reports for the first time the number of pistachio plants in the territory, amounting to n. 1789. This, together with other data on the development of production and the incidence of this crop on the economy of the city of Bronte, come from S. Martelli, L. Longhitano, Il pistachio in the Bronte territory, Report presented at the National Conference on the pistachio held in Agrigento in 1987, in "Agraria Ricerca," no. 79. ("*Prodotti tipici e identità culturale: i casi del lampredotto di Firenze e del pistacchio di Bronte.*", Ruggero Lombardo, January 2015)

Focusing so on the history of *Pistacia Vera*, namely the name of the plant from which Bronte pistachio is produced, it can be affirmed that the its exploitation from the Arabs gave way to an incredible development in terms of cultivation, production, consumption, also to a relevant employment in gastronomy, textile industry, agronomy, and recently in circular economy.

The President of Pro Loco Bronte, Dario Longhitano, the voluntary association responsible for Bronte tourism, affirms that another important step for the history and valorisation of Bronte pistachio can be linked to the creation of the “*Sagra del Pistacchio di Bronte*”, the most important event in Bronte organized every year to celebrate this excellent product. He says that this event has permitted to make to know to all over the world this fruit and to be extremely appreciated.

Lastly, the President tells that another main and fundamental step has been the obtainment of PDO Certification from EU Union and this has increased more its quality and uniqueness.

### *1.2 Product characteristics and nutritional facts.*

Pistachio’s consumption has increased more and more worldwide through exportations, and the support of digital marketing aimed at promoting it and its adaptability mainly in the gastronomy sector. In fact, nowadays, pistachio is strongly used in many dishes, both salty or sweet, and in some cases, it can be used in some dishes as “gourmet” since its employment can result unexpected but at the same time just perfect.

Moreover, pistachio is known as a healthy food, which means that can give us various benefits for our health. For this reason, is more convenient to investigate which are the properties of this product.

From the chemical point of view, what can be said is:

pistachio nuts are a rich source of phenolic compounds, and thus may be considered a “unique functional food”, and have recently been ranked among the first 50 food products highest in antioxidant potential. The phenolic compounds contained in pistachio nuts (anthocyanins, flavan-3-ols, proanthocyanidins, flavanols, isoflavons, flavanones, stilbenes and phenolic acids) are known for their high antioxidant activity, as well as for their chemopreventive, cardioprotective and vasoprotective capacities. [...] Besides their antioxidant properties, isoflavones have proven to act as partial agonists at the level of estrogen receptors and this would be the basis of their chemopreventive action [18]. For this reason, isoflavones, such as genistein, seem to be primarily responsible for the reduced incidence of breast and uterus cancer in Asian female population, whose diet is mainly based on the consumption of soy, a food

| particularly rich in isoflavones. (Tomaino Antonio et. al, 2010)

Thus, pistachio nuts become a supporter of the body at the internal level and external levels.

The dairy consumption of pistachios helps the circular and cardiovascular systems to function in a regular way, becoming so appreciable for the people suffering of diabetes. This, does not mean that a full bowl of pistachio will be helpful because is always important to control quantities and just few as snack can help to maintain the glycaemic index.

Furthermore, it should not be forgotten that pistachio contains inside its oil that is able to reduce stress inflammations, thanks to its antioxidant activity, so revitalizing skin, hair and nails.

To deeper analyse the pistachio’s structure, is convenient to look at its biochemical composition which gives a better view of the nutrients which possesses.

Here it is presented a table reporting the main nutritional values for 100 gr. of peeled pistachios corresponding to 608 Kcals:

Table 1: shows the classification of the main nutritional values of a pistachio

LIPIDS	56,1 grams
PROTEINS	18,1 grams
CARBOHYDRATES	8,1 grams
SUGARS	4,5 grams
FIBERS	10,6 grams
SALT	0,02 grams

(Source: Fat Secret Platform API)

Considering these values, the *OMS* suggests consuming around 30 grams (49 pistachios) a day in a balanced diet which give 170 Kcals. The best moments to eat them are among the main meals as snacks “hunger-cruncher” controlling the portions without exceeding.

Moreover, it is important to take into account the great caloric import which they give, because a right quantity in a day does not contribute to gain weight, as many people think, and instead can help to keep it; in fact, being rich in magnesium and potassium, promote blood circulation and fight swelling. In addition, they are full of fibres and Omega 3 fats that moderate blood sugar levels, the cause of hunger pangs.

Leaving the benefits aside, it is crucial also to analyse the aesthetics of this incredible product, as by being able to recognize an authentic pistachio of Bronte, it is possible to avoid any type of fraud in the international pistachio market.

According to what inhabitants of Bronte and the Consortium of Green Pistachio of Bronte affirm, it is possible to identify it by noticing in the external skin, some shades of green and some purple undertones, while internally, it is of emerald green colour. Moreover, its flavour is unique in the world, pistachio of Bronte can stand out because has an intense and aromatic taste at the palate.

Others international varieties of pistachio have different characteristics with respect to the colour of the skin.

In particular, according to the regulations of the Bronte consortium, there are some features that the Green Pistachio of Bronte must have.

Table 2: shows the main characteristics describing the pistachio the Green Pistachio of Bronte

FEATURE	DESCRIPTION
Cotyledon colour	: intense green and chlorophyll a/b ratio greater than or equal to 1.3
Flavour	strong aromatic, without inflections of mold or extraneous flavours
Humidity content	lower or equal to 6%
Kernel length/width ratio	between 1.5 and 1.9.
Monounsaturated fat in fruits	palmitic acid higher than or equal to 10 per cent, linoleic acid. higher than or equal to 15 per cent and oleic acid content less than or equal to 72 per cent.

Source: Regulations of the Bronte Consortium

Lastly, other differential features of the pistachio of Bronte, regard its skin: pistachio nuts seen as closed and open shells, show their unique colours due to the presence of bioactive

compounds, mainly lutein (yellow), anthocyanins (red) and chlorophyll (green). (Giuseppina Mandalari et al.,2021)

Image 1: Green Pistachio of Bronte is seen opened in its hull and shell.



(Pistachio of Bronte seen opened. Source: Don Tanu)

### *1.3. Cultivation*

The Pistachio (*Pistacia vera* L) is a fruit tree belonging to the *Anacardiaceae* family, which also includes the mango, acagiu, pepper tree and sumac. It can reach 10 m in height but grows slowly and is very long-lived: it can reach up to 350 years. Pistachio tree can grow in different types of soil, but the most important point is that it needs draining soil as it does not tolerate stagnating moisture.

With a specific reference to the cultivation of the Bronte green pistachio, it has to be affirmed that it follows very precise rules to get the so well-known uniqueness which lies in the area where it is grown, namely on the slopes of the volcano Etna. Here, the trees grow very naturally, albeit rather slowly.

The plant is characterised by dense foliage with large clusters of fruit, no taller than 5 metres. It has deep roots, a short trunk, and a greyish bark. After grafting, the full production phase only occurs intensively after 10 years. A plant of this type, in its prime, however, can produce up to 20-30 kilos of nuts.

Cultivation involves, also, a pruning phase carried out from November to March, aimed at

eliminating any dry branches and promoting airing and lighting of the plantation.

Image 2: The tree of pistachio pruned



Source: Association “Bronte Insieme”

Its cultivation has ancient origins and, even if there are no exact sources, it can be affirmed that its cultivation in a widespread way, can be linked to the period of Arabs’ domination in Sicily around IX- X century A.C.; while its diffusion started by the second half of the nineteenth century.

The Sicilian pistachio differs from others productions obtained in other areas of the world, not only for the peculiarities of the cultivation environment and the prevalent type of planting but also for the characteristics of the fruits. (Ministero delle politiche agricole alimentari e forestali, 2012/2014).

At the national level, In Italy, three species of pistachio plantation grow: *Pistacia Vera* L, the only specie which produces edible fruits, *Pistacia Therebintus*, which is used as rootstock for pistachio, and *P. Lentiscus*, an evergreen shrub that is very appreciated for ornamental and landscape uses. (Gauquelin T.- Belhadj S.- Arezki D. (2008) *Following Pistachio footprints in Algeria: In Following Pistachio Footprints (Pistacia vera L.). Cultivation and culture, Folklore and history, Traditions and uses: 57*).

Nonetheless, the diffusion of pistachio plantation is not restricted to Sicily Island, in fact, it is possible to find it also in Sardinia, Basilicata, Apulia, Latium, Calabria, and in a minor percentage in Northern Italy, as a plant of spontaneous growing (from the Euganei and Berici

Hills to the Lakes of Garda and Iseo).

However, it is crucial to clarify that when referring to Sicilian pistachio, the discussion does not only include the region of Bronte (which includes the cities of Belpasso, Biancavilla, Adrano, and Regalna), where the lava soil is present and frequently used for olive cultivations, but also the regions of Caltanissetta, Agrigento, and Palermo, where the variety of pistachio nut has different characteristics and uses.

To gain a fuller understanding of the farming situation in Sicily, it is better to make a subdivision of cultivation types, starting looking at the Catania region and then moving to the ones of Caltanissetta and Agrigento.

In the municipality of Bronte, it can be found a specialization in pistachio's monocultures, in the municipalities of Adrano and Biancavilla, pistachio's plantations are mixed with others crops and, finally, in the municipalities of Belpasso and Regalna, pistachio's plantations are less prevalent with respect to others crops more present. The first and second typologies are prevalent in Agrigento, while the third one in Caltanissetta. (Pesce, 1995)

Another aspect to take into account when analysing the pistachio cultivation, is the variety of the seeds and the type of cultivation between spontaneous nettle trees predominating in Bronte area and orchards established on previously planted *Terebinthus* in Caltanissetta and Agrigento.

The Italian varieties, which make up the Sicilian germplasm, are: "*Bianca*" (synonym "Napolitana"), "*Femminella*", "*Natalora*" and "*Agostana*". The main cultivar is "*Bianca*", widely used and fine variety of the confectionery and bagged meats industries, while the other ones ("*Silvana*", "*Cerasola*", "*Cappuccia*", "*Insolia*" and "*Gloria*") are of local interest. The *Therebintus* variety is also fundamental in the pistachio industry, mainly used for ornamental purposes in parks and gardens as the fructification of the nettle tree is made of numerous red or green-grey fruits, which make the plant very attractive. Anyway, its main function is of rootstock allowed to establish pistachio orchards in shallow pebbly grounds, and even between the cracks of rocks.

*Pistacia lentiscus* also has ornamental uses, mainly in Sardinia, being the most popular on the floricultural market for its cut green foliage, which, due to the delicacy of the foliage are particularly suitable for the constitution of mixed floral compositions.

With respect to the male variety, there are some points to consider: recently, farmers have begun to pay more attention to the importance of male pollinators as a necessary component of

the orchard to gain better results. According to a survey conducted on Etna region, the male pistachio plants represent only the 1% of the total growing trees and this is in contrast to the needs of the orchard where the optimum male/female ratio must be at least 1 to 8. (Belhadj et al., 2008).

Images 3 and 4: pistachio flourished male (on the left) and female (on the right).



Source: Association “Bronte Insieme”.

Additionally, a pistachio farmer in Bronte must always keep in mind that this plant requires time to grow; in fact, it can produce fruit every two years, with this "blank year" being known as the year of recharge. The technique of "*scozzolatura*" is used by the workforce during this unproductive year in the hopes of a biannual production. This procedure, which takes place in the spring, involves removing fruiting buds in order to strengthen plants that have become weak over the fruiting year.

Pistachio producers in the Bronte region use this technique to produce more valuable and plentiful crops. This is a factor to consider when discussing the management of pistachio cultivation since it represents a tactic that can affect the working schedules and all associated activities, as well as the revenues, costs, profits, and methods of commercialization and shelf life. (Pesce, 1995)

#### *1.4. Harvesting*



In comparison to other agricultural regions throughout the world, the harvesting phase is particularly important and challenging in Bronte. The harvesting of the Bronte pistachio, which is entirely carried out by the hands of the farmers, is precisely what sets it apart from many competitors in the world; for instance, in California, pistachio plants are harvested by mechanically shaking the trees.

The lava soil is where the cultivation and harvesting take place in Bronte, in fact, does not allow the introduction of real machines due to the risks and difficulties which could involve. And it is precisely the labour involved in harvesting and the costly labour employed over the course of two years that affect the final price of the product.

The precise technique of the farmer to start the harvesting process consists in shaking with the hands each branch of the tree to make the bunches of fruit drop. These are then gathered, especially in the case of rugged soils, into a container called “*paniere*” or burlap sack carried on the shoulders. It is a quick-paced game that is frequently passed down from father to son.

Another option, if the rocky ground permits it, after the shaking of the tree, fruits can be dropped on a trap and subsequently, collected inside a burlap sack which is well closed and ready for transportation which occurs on foot along the *sciare*<sup>5</sup>.

An interesting fact about manual harvesting is that it is carried with hands to avoid the fruit could touch the ground and being exposed to contamination; this means that the hands of collectors become sticky considering that the branches and fruits are abundant in resin. To solve the problem of the resin, they usually bring with them to the fields some bottles of oil to dissolve it.

Image 5: Harvesting of pistachio with the “*paniere*”

<sup>5</sup> Routed around the Etna volcano.



Source: Association “Bronte Insieme”

Harvesting is carried out during summer time starting from the beginning of August until the end of September. In these months, the pistachio fruit undergoes some transformations which finish with the ripening and the following changing of colour: first green, then ivory and pink; when the colour of the hull turns white, that is the signal that the fruit can finally be harvested.

Images 6-7-8: the fruits of pistachio changing colour from May(left) to September(below)



Source: Association “Bronte Insieme”

With respect to the year 2022, it has been the “blank year”, being an even year and the only possible actions have been the pruning and treatments of fertilization.

This is given to the alternating production of the trees, which entails years of fruiting and years without fruit. The fruiting buds have been removed to let the plant rest until September 2023, when harvesting will occur again with better fruits. In this way, all the available stocks were put on the market maintaining the same prices: shelled pistachios sold at 45-50 €/kg, while in-shell pistachios have a peak price of even 17 €/kg as Alfio Paparo affirms, one of the members of the directive department of the Consortium of Green Pistachio of Bronte.

Once the fruits are harvested, subsequently, are mechanically “*sgrollati*”<sup>6</sup> through the technique called “*smallatura*” and left to dry under the sun on some surfaces for a few days (around 4-5 days) to remove moisture. In case of rain, the drying occurs in little ovens or greenhouses. This drying phase can become shorter (2-3 days) if the pistachio fruits are put under covered tunnels with plastic materials. Drying, in recent years, involves the use of mechanical hot air current dryers, with drying temperatures of around 40 - 50 °C, which are the optimal ones to guarantee the absence of alterations of the chlorophyll of the most prized varieties. (*Piano del settore mandorle, noci, pistacchi e carrube* 2012 / 2014, Ministero delle politiche agricole alimentari e forestali). The pistachios are then placed in jute sacks before proceeding to the storage and marketing stage at local, national, and international levels.

Images 9 and 10: On the left pistachio just “*smallato*”, on the right the drying phase



Source: Association “Bronte Insieme”

<sup>6</sup> Technical term to say that the hull is removed

### 1.5. Production process

Pistachio fruits after harvesting, as mentioned before, undergo the drying phases and three kinds of end-products are therefore obtained: in shell, shelled (yield 40-45%), and peeled. The average operating potential of this kind of processing plant is of about 500 kilos of shelled pistachios per day. Some processing plants further process the fruit to obtain pistachio flour, pesto (condiment), cream and paste for pastry and ice cream.

Firstly, it is essential that after the harvesting phase, the fruits are hulled within 24 hours to avoid their darkening and any time of contamination.

Later, pistachios are dried with direct light maintaining a temperature under 50 degrees with a degree of residual humidity of the seed below 6%. The dried product must be placed in new containers complying with current regulations and stored in suitable, ventilated, and dry rooms, avoiding contact with floors or walls. (*Disciplinare di produzione "pistacchio verde di Bronte" denominazione d'origine protetta 2010, Gazzetta Ufficiale della Repubblica Italiana*).

Once the last drying phase ends, the pistachio ready with the shell is called *Tignosella*, in technical words.

Then comes the shelling step through specific machines which permits expediting the process; also, to avoid any remaining impurity, a manual selection of the shelled pistachio is launched.

At this point, the colourful nature of the pistachio is visible and the emerald green mixed with some purple undertones of the peel becomes a trademark.

Nonetheless, the market often prefers a peeled pistachio which permits see entirely its intense green colour.

Image 11: Peeled pistachio



Source: Association Bronte Insieme

Hence, pistachios go through the peeling process which function is removing the thin purple-reddish pellicle by means of a highly technological process that exposes the fruit to a brief jet of high-pressure steam that causes the separation of the skin. To complete this step, and remove completely the pellicle, the pistachio passes through rubbing rollers at differentiated speeds.

The green pistachios then go through a complex drying process at low speed and from this to an electronic selecting machine that rejects eventual pistachio of not the right colour.

However, not all the phases are compulsory because they are the demands of the market which lead to the different steps of the production process. In fact, consumers in the market, search for shelled, not peeled, peeled pistachio or also chopped, in sticks, sliced, and as pure paste and flour.

Specifically, the demand regards the gastronomy sector in Italy and others countries around the world. In numeric terms, the production of pistachio of Bronte covers in Italy 90% of the total pistachio production, while in the world only 1% (The first ones are Iran and USA). This is because the municipality of Bronte (18.149 habitants) in terms of extension is quite small and this does not permit many hectares of cultivated terrain. Hence, just a few quantities can arrive in international markets (15-20%) among France, England, Spain, Germany, and a little portion of the USA. (Source: Istat).

Demand for the shelled product mainly concerns the sausage meat industry, which uses about 60% of it, while the remaining part is destined for the pastry sector, ice cream, and artisanal confectionery sectors.

According to Enrico Cimbali, the president of the board of directors of the Consortium of Green Pistachio of Bronte DPO, 75-80% of the production of pistachio of Bronte is sold in Italy,

while the remaining 15-20% is left for the international market mainly in Germany, Spain, France England and a few in US (Seminara, 2023); the portion of available for international selling is little and this is due to the fact that Bronte unluckily has not an extension in hectares sufficient for greater production. In Italy companies or restaurants use the raw material to create ice cream, biscuits, cakes, *panettoni*, *colombe*, pistachio pestos, spreadable sweet creams, sausages, cheeses, and cured meats.

## 2) *Preservation and protection of the pistachio of Bronte*

### 2.1 *Protection of Consortium of the Green Pistachio of Bronte*

The Consortium for the Protection of the Green Pistachio of Bronte, body recognized by the Minister of Agriculture, Food and Forestry on 09/11/2016, was born on the 4<sup>th</sup> of November 2004 through articles of incorporation, with 30 producers and agriculture entrepreneurs with the aim of defending, protecting, and promoting the leading product of the territory, unique in its genre. It is an authentic treasure, that every corner of the world should know and give it a chance to taste it.

Its members are the historical companies of the Bronte area, which have always been involved in the production and protection of Bronte's green gold; so are included: European Community, MIIFAP, Sicily Region, Zoo prophylactic Institute, municipality of Bronte, municipality of Adrano, municipality of Biancavilla.

The members of the Consortium can be categorized into three types: producer members, packaging members, and producer organizations.

However, to understand deeper the importance of the Consortium, it is important to mention the activities and functions that it carries out, for this reason, the Consortium of Green pistachio of Bronte has drafted a document indicating all the requirements needed for the utilization of the denomination of Green Pistachio of Bronte.

Below is reported what the president of the Consortium, Biagio Schilirò, declares in the mentioned Guideline Policy document.

Firstly, all the activities carried out:

- Promote the application of the Policy Guidelines and propose any modifications or implementations, as well as promoting the improvement of the qualitative characteristics of the "Green Pistachio of Bronte PDO";

- Define programmes containing structural and technical adjustment measures aimed at qualitative improvement of production in terms of health and hygiene safety, chemical, physical

- chemical, physical, organoleptic and nutritional characteristics of the marketed product;

-Protect, promote, enhance and look after the general interests of the Green Pistachio of Bronte PDO also through consumer information;

-Make proposals for regulations, also in the implementation of the registered Policy Guidelines, and  
perform consultative tasks relating to the "Green Pistachio of Bronte PDO";

-Establish, hold and use the consortium trademark for all the purposes envisaged by these articles of association;

-Achieve and perform the task of supervision, as a body authorised by the competent State Administrations with the execution of all functions connected to the relative exercise, in accordance  
with the modalities established by the law in force;

-Protect, defend, even in the court, in Italy, and abroad, and ensure that by anyone, no undue, abusive, or illegitimate use is made, even referring to different product categories the wording "Green Pistachio of Bronte PDO", the consortium trademark, the distinctive sign of "Green Pistachio of Bronte PDO", the logo, and any other symbol or wording that identifies it, and ensure that no names, names, phrases, and symbols are used that are in any way likely to mislead the purchaser or consumer;

-Extend in Italy and abroad the knowledge and dissemination of the "Green Pistachio of Bronte PDO" and its quality characteristics by carrying out appropriate promotion and extend in Italy and abroad the knowledge and diffusion of "Green Pistachio of Bronte PDO" and its quality characteristics, carrying out promotion and information work everywhere, including on its production chain;

In addition:

-The Consortium is the exclusive holder of the protected designation of origin "Green Pistachio of Bronte PDO";

-The use of the protected designation of origin is subject to the rules and regulations



use of the protected designation of origin is subject to the rules and regulations relating to it; in particular, by statute, its use is permitted to all consortium members and subject to the Green Pistachio of Bronte PDO control system;

-The Consortium also carries out surveillance activities on similar products, produced and/or marketed within the European Union, which, with false indications on the origin, species, nature, and specific qualities of such products may cause confusion among consumers and damage the production of the Green Pistachio of Bronte PDO product;

-It is the Consortium's objective, in addition to the activity envisaged by its statute, to extend in Italy and abroad the knowledge of the PDO "Green Pistachio of Bronte PDO", as well as of its quality characteristics everywhere by carrying out appropriate promotion and information work also related to its production chain;

### *2.1.1 Criteria for the use of the Green Pistachio of Bronte PDO in the labelling of processed products*

The objective of this Regulation is to regulate and define the limits and conditions for the correct use of the Green Pistachio of Bronte PDO protected designation of origin.

The following should remind producers that the labelling of products bearing the reference 'Green pistachio of Bronte PDO' must be labelled in advance. Specific authorisation must be requested in advance from the Consortium, which will enter the users in the appropriate register and activate the relevant controls.

Please note that the certified product used must be the exclusive component of the product category to which it belongs.

The use of 'Green pistachio of Bronte PDO' in the food preparation must take place by mentioning anywhere on the label the words <<product 100%" Green pistachio of Bronte DOP">>or <<100% product "Green Pistachio of Bronte Protected Designation of Origin Protected" >> (placed in inverted commas)

It is forbidden to use any other name or additional adjectives with the above name.

The words "Protected Designation of Origin" or the acronym "PDO" to be used on the label must be placed after the protected name, so that it is clear and not liable to mislead the consumer

that these indications or acronyms refer to the product registered product used as an ingredient, and the latter must be an exclusive component of the product category to which it belongs and not to the compound, processed or transformed product.

For products with an exclusive base containing 100% " Green Pistachio of Bronte PDO ", one must use the wording <<100% "Green Pistachio of Bronte PDO">> or <<100% "Green Pistachio of Bronte Protected Designation of Origin">> for compound, prepared or processed products that use the "Green Pistachio of Bronte PDO" with percentages lower than 100%, the wording <<with "Green Pistachio of Bronte PDO">>.

### *2.1.2 Criteria for the use of the Green Pistachio of Bronte PDO in the labelling of processed products*

1. It is prohibited to use the Community symbol and logo of the protected name in the labelling, presentation, or advertising of the composite, a processed or processed product containing a reference to a PDO;
2. Without prejudice to the above, it is also possible to include on the label, exclusively in addition to the reference to the PDO in Italian, a translation of it in another language. Following the translation of the name in a language other than Italian, it is not possible to quote the acronym, even if translated;
3. It is possible to use, following the PDO ingredient in Italian, the acronym in a language other than Italian by using one of the translations of the acronyms given in Annex V of Regulation (EC) No 1898/06;
4. The size of the characters used for the reference to the PDO in a language other than Italian may not be larger than those of the characters used for the version in Italian.
5. The PDO name used and any corresponding translation must be in the same visual field.
6. The user is obliged to ensure that the PDO product is purchased from a supplier/ packager subject to control by the body referred to in Articles 36 and 37 of Regulation (EU) 1151/12;

7. The user must sign an undertaking to demonstrate, by means of records, that the quantity of PDO product used in the composite, processed, or transformed product corresponds to the quantity of PDO product received as well as an undertaking to produce, at the request of the Consortium or the competent offices, the relevant documentation;

8. The user must sign an undertaking to record monthly the number of packages of the compound, processed, or transformed product containing the reference to the PDO produced, to transmit a technical sheet describing the compound, processed, or transformed product, and to communicate the location of the factory where production will take place. Any change of plant must be communicated in advance to the Consortium for the protection of the "Green Pistachio of Bronte PDO" Consortium;

9. The user must declare that the PDO product will be stored, before processing separately from other products belonging to the same product category;

10. the user must declare that the authorisation granted will not be transferred, not even in sub-concession, to third parties, either free of charge or for consideration and that, in the event of cessation of the activity and/or specific production, the use of the reference to the protected name will cease in the labelling, presentation and advertising of compound, processed or processed products;

Hence, it is crucial to underline that any activity that would like to introduce on the label of a product the denomination of "Green Pistachio of Bronte PDO", must make a request to the Consortium. The consortium will verify all the necessary requirements and if the verification is positive, the activity will receive permission for utilization.

Moreover, The Consortium for the Protection of the "Green Pistachio of Bronte PDO" will also provide for the registration in its register, as established by Legislative Decree 297/04, art. 1, paragraph 1 (letter c, point 1), the checks for the correct use of the designation.

Image 12: The logo of the Consortium of the Green Pistachio of Bronte



Source: Website “Consorzio pistacchio verde”

## *2.2 PDO Certification*

The Bronte pistachio is both a commodity and a cultural manifestation resulting from a long history of interactions between specific environmental and cultural agencies (Petino, 2010). This special product has seen centuries of events until the moment in which its uniqueness was recognised. It has to be said that Bronte Pistachio refers to a specific area that is the one defining the Protected Designation of Origin.

A description of the PDO boundary published in the Official Journal of the European Union specifies the area located within ‘the municipalities of Bronte, Adrano, and Biancavilla in the Province of Catania between 400 m and 900 meters above sea level’ (Commission Regulation, 2010, p. 17).

More in detail, the production area of the Green Pistachio of Bronte falls in the territory of the municipalities of Bronte, Adrano, and Biancavilla (Province of Catania). In particular, the boundaries are identified as: BRONTE – west along the Simeto River, east to the height of 900 a.s.l., south to the municipality of Adrano and north along the road from Bronte to Cesarò; ADRANO – north to the border of the Municipality of Bronte, south to the town centre and the State Road 121 (SS 121), east with the Lava Grande of 1595 and with the Commune of Biancavilla, west along the Simeto river to the SS 121; BIANCAVILLA - north along the border of Adrano, south to the town centre and the SS 121, east to the municipal boundary of Santa Maria Licodia, west to the border of the Municipality of Adrano. The production area must be between 400 and 900 meters in elevation. (Translated from the Official Journal of the Italian Republic, 2010, p. 34). (Jeffrey S. Wilson, Gianni Petino & Daniel C. Knudsen (2018)

Geographic context of the Green Pistachio of Bronte, a protected designation of origin product, *Journal of Maps*, 14:2, 144-150, DOI: 10.1080/17445647.2018.1438318)

Hence, it is in the area above mentioned that the authenticity, uniqueness of flavour, cultivation, and production is delimited.

Modern geographically delimited products codify both a specific area and a set of physical, biological, and cultural practices. In so doing they seek to both guarantee authenticity to the consumer and preserve production methods and lifestyles that result in distinct products. Because these systems are recognized and enforced at international levels, they have the potential to protect both producers and consumers from lower priced and lower quality imitations. Purchasing PDO, PGI, or TSG goods not only can be seen as 'buying into the farmers,' but it is also a choice to purchase a particular product with unique characteristics, produced in an exacting way, and under legally sanctioned specifications. Products such as the Bronte pistachio also have symbolic content, but consumers' recognition of geographical labels depends on the context. (Wilson, 2018)

Showing on a label the PDO is a way, firstly, to inform consumers about the product they are buying and consuming is linked only to a delimited area of cultivation and production, where also tradition plays a relevant role. Moreover, the PDO is crucial in order to protect consumers from false products that could use wrongfully the wording of PDO. Consumers who are not aware of these designations are more motivated by price and perception of quality. Consumers who recognize the precise origin of a product and understand the symbolic content may have close connections to the product's region of origin. (Wilson, 2018)

Until now, has been underlined the importance of PDO, especially for consumers, nonetheless obtaining the one for the pistachio of Bronte has not been an easy job.

According to the director of the Consortium of the Green Pistachio of Bronte<sup>7</sup>, the whole process necessary for its obtaining took ten years and started in 1999: the production area was identified and defined, cultivation practices and production, and what is necessary for the creation of a production regulation, which was discussed at a public Hearing held in Bronte in the presence of Ministerial Officials in May 2000.

In 2003 the application to the European Commission was sent to begin legal recognition. Only in March 2004, the Decree of the Ministry of Agricultural and Forestry Policies was published with the "Transitory protection granted at the national level to the name "*Pistacchio*

<sup>7</sup> The data expressed by Enrico Cimbali, has been obtained through a written interview.

*Verde di Bronte*". So, more years passed, still in vain, to arrive at the end of 2007 only to glimpse the possibility of the due recognition being issued in 2009. Finally, on 9 June 2009, the goal was reached: the Official Journal of the European Union (2009/C 130/09) published the specification granting the 'Green Pistachio of Bronte' the Protected Designation of Origin. In January 2010, there was the publication establishing the designation *Pistacchio Verde di Bronte DOP*.

Image 13: Label showing the PDO of the Green Pistachio of Bronte



Source: Daniele Sattia (Website "Consorzio pistacchio Verde")

Enrico Cimbali, president of the local trade organization "*Consorzio di Tutela*", says<sup>8</sup> there are 230 authorised farmers within the defined Bronte area, which have the "*denominazione di origine controllata*" (PDO, or controlled designation of origin). Aficionados say they can charge such a premium because their seeds both taste better, and keep their bright green colour for a longer time.

In this regard, Cimbali has disclosed which are the factors to take into account when someone has to recognise a real pistachio of Bronte. He affirms that is necessary to pay attention to:

- The shape: The Green Pistachio of Bronte PDO is tapered, slender, and never develops in roundish shape, but in length.
- The colour: the skin has a colour tending towards violet, or rather

<sup>8</sup> The data expressed by Enrico Cimbali, has been obtained through a written interview.

to aubergine, with light green highlights. Split into two parts, the pistachio will show the typical emerald green, sometimes bright, sometimes softer, and never yellow (typical of pistachios from foreign countries).

- The taste: basically, tending to sweet. Also, the aromatic flavour and high content of monounsaturated fatty acids of the fruit are distinctive features as are hard to find in other areas of production.

- The label: it is important to read the label carefully looking at the ingredients, provenience, pictures, fonts, and colours.

Hence, these indications should help consumers in the identification of authentic pistachios of Bronte and its secondary products as spreadable creams and pestos.

### *2.3 Quality control*

Enrico Cimbali, head of the Consortium, has provided an analysis of the consumer protection strategies in regard to the green pistachio of Bronte. However, he, affirms<sup>9</sup> that on the side of the producers, exists a net of collaborations aimed at controlling and ensuring the quality of the pistachio of Bronte. The consortium cooperates with the Central Inspectorate for Fraud Repression in carrying out the activity of supervision, protection, and safeguarding of PDOs with the aim of identifying and combating acts of unfair competition and counterfeiting, as well as improper use of the protected denomination. Another body responsible for guaranteeing the effectiveness and operability of the control system concerning the 'Pistacchio Verde di Bronte' protected designation of origin, is the "Experimental Zooprohylactic Institute for Sicily A.Mirri".

This is a crucial task for the organizations and inspectorates considering that preparing a box with pistachios from Iran (lower price) instead of the ones from Bronte is extremely easy, as well as cheating the consumers who may not know how to differentiate different types of pistachios both in term of flavour and in terms of colour and price. Also, marketing is a big enemy, as the wording "Sicilian pistachios" or "Spreadable cream with pistachio of Bronte" can mislead the

<sup>9</sup> The data expressed by Enrico Cimbali, has been obtained through a written interview.

consumer and bring him thinking that he/she is eating a product totally related to the pistachio of Bronte.

At the national level, there have been many cases of counterfeiting, a recent example brings us to the province of Verona, where the owner of a company has been administratively sanctioned for non-compliance with the production specifications of the PDO '*Pistacchio Verde di Bronte*'. The problem is big and concerns all denominations of origin, as General Luigi Cortellessa, Carabinieri Commander for Agri-Food Protection, explains: 'This is the risk of every PDO and PGI. In Italy, with more than 800 protected brands, we have three-quarters of the value of the EU'. In particular, the Green Pistachio of Bronte is one of the most exposed to the risk of emulation and therefore, of false reproduction. It is yet a famous brand, so everyone would like to sell it, but with foreign pistachio, in a way that costs can be cut out. (Seminara, 2022)

Another case, again in the province of Verona, regards the seizure of 250 Colombe (the sweet preparation typical of Easter time) which showed in the label "*Colombe al pistacchio di Bronte Dop*", but without the authorization of the Consortium for using the denomination on the product.



### 3) Bronte the capital of pistachio

#### 3.1. The geography of Bronte

The Bronte territory (25,000 hectares) is one of the largest in the Province of Catania, in Sicily Island, located approximately 50 km from it. The territory has an altitude ranging from 380 to 3350 metres.

It has a varied and interesting conformation, both for its high degree of biological diversity and for the quality of the entities that are represented there and, above all, for the stupendous and uncontaminated nature that distinguishes it.

It is not for nothing that Bronte gives more than half of its territory to Etna Park, Nebrodi Park, the protected area of the Simeto lava gorges, and Alcantara River Park.

It stretches from the summit of Etna's Central Crater (3,350 m.) to the Nebrodi peaks and falls within two beautiful parks: Etna Park (to which it gives about 10,000 hectares) and the Nebrodi Park (which includes 3,871 hectares of Bronte's territory, of which 1,495 in the integral reserve zone A).

Because of its absolute uniqueness, it certainly represents one of the most interesting landscape scenarios in the province of Catania, both for its varied and interesting conformation and for the high degree of biological diversity.

Among the twenty municipalities whose territories fall within the Etna Park area (declared a UNESCO World Heritage Site), Bronte gives 10,000 hectares, out of a total of 58,000 (18%).

The city dominates the upper Simeto valley and extends, descending gently from the slopes of Etna to the banks of the river where marking the boundary of the municipal area, are the last ancient and imposing rivulets of lava magma corroded by water. The inhabited centre, with narrow, tortuous streets and steep stairways, is located at an average altitude of 800 metres, on the northwest side of Etna.

Bronte is known as the land of pistachio, however, is not all, because is also an area rich in admirable forests and inexhaustible itineraries along the slopes of Mount Etna, on the slopes of the Nebrodi mountains, or along the course of the Simeto river.

Among the itineraries that tourists have the chance to join around Bronte, can be considered:

- The woods of Monte Maletto: Maletto, the highest village above sea level in the entire belt of Etna municipalities, offer tourists the most attractive side of the volcano from

which is possible to enjoy breathing panorama. Along the path, visitors walk among the Etna woods and is also possible to bring a sleeping sack to spend the night there and awake to enjoy the wonders of Etna's sunrise.

- The Waterway - The Medieval Path - The Obelisk: A path between Nebrodi Park and Etna Park to widen the offer of natural tourism of the territory of Maniace. The name, waterway, is given because, along the path 20 km long, visitors discover different water sources until meeting the Nelson Obelisk. This itinerary permit enjoying the most beautiful part of Nebrodi Park.

- “*Canto alla sciara*”: This itinerary has been created to permit tourists to discover a 'sea of black lava' that stretches out behind Bronte, in the immediate suburbs, from where a beautiful road paved with flagstones, leads up to the Forestry gate in the “*Piano dei Grilli area*”, at the foothills of Etna. A unique show, terrifying and at the same time majestic and fascinating, the remains of a river of incandescent magma that destroyed a part of Bronte a couple of centuries ago and that, as it solidified, took on the strangest and most unlikely shapes.

- On the banks of the Alto Simeto: This itinerary refers to the stretch of the river from “Ponte Bolo” (Bronte) to “*Ponte dei Saraceni*” (Adrano).

Bronte boasts an important historical-artistic and monumental heritage: the 16th-century Church of the Annunziata, the Church of the Rosary, the Church of San Giovanni, and the Church of Santa Maria Della Catena.

The 18th-century Capizzi College, to which the Church of the Sacred Heart is annexed, stands out among the civil buildings.

Outside the town (13 km) there is the famous complex of the former Abbey of Santa Maria di Maniace, an example of Siculo-Norman architecture<sup>10</sup>.

From the urban point of view, the city of Bronte preserves almost unaltered its Arab-inspired urban structure, scattered with courtyards, subways, narrow winding alleyways and steep staircases.

The ancient area, still clearly identifiable in its original varied layout, is full of buildings of

<sup>10</sup> Source: Bronte Insieme website

extreme simplicity, imbued with the traits of the peasant civilisation. The old districts are grouped around the churches that have constituted - since the time of the “*Unione dei 24 Casali a Bronte*”, ordered by Charles V in 1535 - the indispensable monumental landmarks. The “Church of the Holy Trinity (*La Matrice*)”, the “Church of the *Soccorso*”, and the “Sanctuary of the *Annunziata*”. On the original structure, structures of Baroque Renaissance inspiration were grafted, rich in ornaments, aedicules, portals, and small temples with the graceful icons of the *Annunziata* (Associazione Bronte Insieme, *Bronte, Gioiello di Lava*, 2004:77)

Together with Via Santi, Corso Umberto I, is the main road of residential and social life. The main street, with its characteristic squared lava stone flagstones, begins at “*Scialandro*”<sup>11</sup> and, with its serpentine course, elegantly frames most of the important churches and buildings in the centre. The course, through the massive structure of the “College Capizzi”, ends in “*Piazza Spidaliери*” (an area for festivals, events, and political meetings).

From *Corso Umberto I*, a dense maze of winding streets branches off, encircling churches, palaces, alleyways, and courtyards... the most characteristic elements of this highly articulated agglomeration are the votive shrines, portals, and, above all, the lava stone stairways. Many of the streets in the centre are true staircases leading up to individual houses. (Associazione Bronte Insieme, 2004)

Image 14: View of Bronte city between the Etna and the net of streets and buildings



Source: Ministry of Interior

<sup>11</sup> This is a word of the Bronte vocabulary which indicates a specific old zone of the city.

In order to gain a deeper understanding of the potential of Bronte and its area and how it can best be exploited, it is important to analyse all the factors that may threaten its development or, on the other hand, stimulate it. For this reason, it is essential to develop a SWOT analysis of Bronte's geography.

By starting with the strengths, it can be highlighted the association between the city of Bronte and its pistachio which improves the value of its agricultural capital, and this is provided primarily by the PDO Certification and its protection by the Consortium of Green Pistachio of Bronte. Furthermore, due to its location on the slopes of Mount Etna, Bronte enjoys the benefit of attracting both sports visitors who want to go hiking and natural tourists who are interested in exploring the nearby parks. Additionally, travellers who are foodies wish to sample Etna wine, and Etna honey, in addition to pistachios. This great richness can be linked to the Bronte's uniqueness of landscape, peculiar climate and soil permitting the cultivation of singular products and rich historical-artistic heritage.

Certainly, The *Sagra del Pistacchio Verde di Bronte*, occurring every year, attracts a great number of tourists contributing to the development of its economy and promotion. However, the touristic promotion of the city of green gold is carried out also by cultural and tourist associations that try to enhance the cultural and gastronomic heritage of the area

On the other side, some weaknesses are also present. Firstly, the location of Bronte might occasionally put off visitors because getting there requires driving through the mountainous area of Etna, which is not an easy path. With regard to the production sector, it may be underlined that the Bronte extension is not very large, making it unable to use many hectares of land for pistachio production. This forces producers to set restrictions in production even when demand is stronger.

Another aspect to take into account is that according to Dario Longhitano, according to what he has declared in one interview, the people of Bronte are not very enterprising and open-minded, which makes it difficult for the city to develop much of its tourism.

Lastly, given that Bronte's pistachio is still not widely promoted abroad, it is challenging to get foreigners to understand its distinctiveness with respect to other international varieties of pistachio which are more spread and sold.

Now, the external factors influencing the territory of Bronte have to be also analyzed.

Mentioning the opportunities of the area, the first reference is for the closeness of Bronte to Catania Airport, (50 km of distance); this is a key factor since visitants can get there in more or

less 1 hour by car or by bus.

Considering that rural tourism is quite spread in the Sicily region, surely it can be affirmed that the Etna area is included; this has the chance to boost its incoming tourism by offering different types of activities. In this regard, Bronte’s firms can offer guided tours around pistachio plantations, cooking classes pistachio-focused, and more than just selling products on-site.

Another important point is that Sicily Region gives funds aimed at developing rurality through new proposals, therefore this is an incentive to develop more projects.

With respect to the threats, Etna Volcano is Europe's most active volcano, eruptions happen rather frequently. This may be a factor more that discourages tourists from visiting the area.

In addition, the worsening of the war Russia-Ukraine, could affect the tourist demand at the international level, in this way the Bronte’s pistachio could be less demanded.

The last factor which could affect the potentiality of Bronte’s pistachio is the inflation, taking into account that the green gold is already a premium product, the demand may be significantly impacted by a further potential increase in inflation.

In order to summarize and provide a clearer idea of the internal and external factors affecting the dynamics of Bronte’s territory, it may be opportune to show the results of the analysis SWOT in a table.

Table 3: Analysis SWOT of Bronte’s territory

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- Improvement of the value of Bronte’s agricultural capital, provided primarily by the PDO Certification and the Consortium of Green Pistachio of Bronte.</li> <li>- Strategic location on the slopes of Mount Etna to attract both sports and food travellers.</li> <li>- Bronte’s special landscape, climate and</li> </ul>	<ul style="list-style-type: none"> <li>- The location of Bronte discourages visitors for the type of soil.</li> <li>- The people of Bronte are not very enterprising and open-minded.</li> <li>- Challenging to get foreigners to understand the uniqueness of Bronte’s pistachio.</li> </ul>

<p>historical-artistic heritage.</p> <ul style="list-style-type: none"> <li>-The Sagra del Pistacchio Verde di Bronte, makes develop its economy.</li> <li>-Cultural and tourist associations for the promotion of cultural and gastronomic tourism.</li> </ul>	<ul style="list-style-type: none"> <li>- Producers are forced to set restrictions in production even when demand is stronger.</li> </ul>
<p>Opportunities</p>	<p>Threats</p>
<ul style="list-style-type: none"> <li>-Bronte is located 50 km far away from the Catania Airport.</li> <li>-Rural tourism is quite spread in the Sicily region including the Etna area.</li> <li>-Sicily Region gives funds aimed at developing rurality through new proposals.</li> </ul>	<ul style="list-style-type: none"> <li>- Frequent Etna Volcano eruptions.</li> <li>-Worsening of the war Russia-Ukraine</li> <li>- Further potential increase in inflation.</li> </ul>

Together, Bronte, Simeto Valley, Nebrodi Park, and Etna Park constitute a significant natural, historical, cultural, and gastronomic heritage. The PDO-protected Bronte pistachios' distinctiveness, which adds value to the region's rural capital, further enhances this heritage. The annual Bronte Green Pistachio Festival, which attracts thousands of visitors of all types, makes a significant contribution to the region's tourism development.

However, despite the numerous reasons to travel to and explore the Bronte region, some may be put off by Mount Etna's ongoing activity or the challenging hilly route. Additionally, despite the fact that there are plenty of opportunities, it appears that the people of Bronte lack the entrepreneurial spirit necessary to activate great tourism marketing through new events, as Dario Longhitano, director of the Pro Loco Bronte, claims.

Given that the area around Bronte is rural, there is a huge potential to use the funds that the Region of Sicily makes available to promote tourism, engage in activities, hold events, and start new projects that will help rurality spread throughout the region. Additionally, Bronte can rely heavily on its proximity to Catania Airport to draw in more tourists. However, there are always

variables that could limit the number of tourists visiting the region, such as, in general terms, rising economic inflation and the political conflict between Russia and Ukraine. Both could adversely impact the demand for tourists.

### 3.2. *The development of Bronte*

#### 3.2.1 *The historical path of Bronte*

The city of Bronte has a long history of battles and victories, reality and mythology from the moment of its birth to the present day.

From its name, it can be deduced that the Greeks founded it in the distant past. The word Bronte, from the Greek “*βρονθ*” (read: Vronði) which means "Thunder", was used in Greek mythology as the name of one of the three Cyclopes (one-eyed giants): *Bronte* (= Thunder), *Sterope* (= Lightning) and *Piracmon* or *Arge* (= Fire), who were believed to live within the caves of the Etna volcano. Those three Cyclopes, together with their leader *Polyphemus*, were called sons of *Poseidon* or *Neptune*, God of the Sea and of *Amphitrite*, Goddess of the Earth. Many theories have been put forward on the origins of Bronte, but it seems none of them has incontestable proof, as Bruno Luigi Spedalieri affirms in his book “*Bronte e la sua storia*” of 2021.

He has conducted many types of research about this city and he firmly maintains that Bronte has Greek roots, more especially contends that there are connections to the city of Athens. The Founders were a small group of soldiers from Athens, part of the disastrous Athenian expedition of 416 BC against the city of Syracuse. In 416 BC disputes and struggles had arisen between the two Greek colonies of western Sicily: Segesta and Selinunte. The Greeks became the founders and leaders of the first organized center of those wooded areas. If we take into account what Greek mythology narrates regarding the origin of the city of Athens, we will better understand the reason for the pairing of Bronte and Athena. Many centuries ago, in Attica, a certain *Cecrops* began to build a city and adorned it with such beauty that the Gods of Olympus began to quarrel among themselves. Anyway, much of these stories is just poetry, and it is necessary to concretize facts: if one takes into account that the word Bronte is of unmistakable Greek origin and that the Greek colonization of Sicily only began in the 10th century BC, can even ventured the end of the year 413 BC as the date of origin of the city of Bronte. Consequently, in this year 2021, our Town would count 2434 years of existence.

The Roman Age also left its traces in Bronte, one of which is the mutation of the name of the Temple of Athena, founded by the Athenian soldiers, into that of Minerva, which was the Latin name given to the Goddess herself. In fact, the Romans used to give the same Greek Gods different names, so they called: Neptune the Greek God Poseidon, Jupiter what the Greeks called Zeus and Minerva the Goddess Athena.

With the advent of Christianity in Bronte, the Temple of Minerva was converted into a Christian church and dedicated to the *Virgin Mary*, and it was the first in Bronte; church that until the mid-1500s was known as the Church of Santa Maria di Minerva. This is due to the fact that always been the propensity to dedicate the temples of *Athena* to the *Madonna* as this Goddess was considered a virgin by both the Greeks and the Romans. The First Church of Bronte has become, with the passing of the centuries, today's Mother Church (*Chiesa Matrice*).

In historical documents, the first mention of the town of Bronte appears in the year 998 AD, at the time of the Saracen invasion of Sicily which ended with the defeat of Saracens in 1308 by the Christians. Specifically, Bronte appears for the first time as a property of the Maniace Abbey in an Act of the *Viceroy Lopez Ximenes de Urrea*, Archbishop of Palermo, issued on March 14, 1471. However, it was an error which will be corrected in the Decree of appointment of the Commendatory Abbot. In fact, the same year on 21 November 1471, *Cardinal Rodorico Borgia* (future Pope Alexander 6th) received from Pope Sisto 4th the investiture as *Commendate* Abbot of the Benedictine Monastery of Maniace. The new Abbot illegally sealed the vassalage of Bronte to the Monastery, aggravating it with land taxes. *Pope Innocent 8th*, unable to finally do justice to that affair that fell into his hands, seized the first opportunity to give away that vast fiefdom to the Senate.

The city of Bronte has always been hit by misadventures among which famines, eruptions and plagues and as a result of this, many had died and many others had been dispersed in the countryside. In 1535 Bronte was reduced to a hamlet of 250 people (about 50 families).

In 1540 the nobleman *Nicola Spitaleri* signed a contract with the sculptor *Antonino Gagini* for the purchase of the Statues of the Annunziata, a purchase which was certainly dictated by a religious reason, but it was at the same time a tactical gesture to entice the populations scattered among lava and woods to go and gather under the protective mantle of the Virgin who came to announce better times.

On May 21, 1550, the Emperor himself, *Charles V*, addressed the Jurors of Bronte directly to ask them to send 20 workers to Catania to work on the fortifications of the city threatened by the Turks;



On 6 April 1636, there was an attempted revolt by the Brontesi against Randazzo and his loan-shark government; in response, the latter had the gallows at *Scialandro*. Then in 1799, when English Admiral Horatio Nelson helped the King Bourbon King of Naples and Sicily to suppress the nascent Parthenopean Republic in blood, a venture that the British themselves condemned as infamous, the Admiral was rewarded by King Ferdinand I at the expense of Bronte. He received as a gift that vast fief including: Maniace and Fragalà and Bronte, contested for many centuries, and was invested with the title of Duke.

The Senate of Palermo, grateful to Nelson for that service, granted him citizenship. In 1799 he was created Duke of Bronte with a feudal character. Unfortunately, glories lasted not so much time, Nelson died in the battle of Trafalgar on 21 October. The period of Duchy Nelson was for Bronte the final phase of the history of an evil that had reigned for centuries. Relations between the Duchy and the Bronte's people have never been good, I would even say that they have often been fiery. Bronte, always prevented from deciding its own fate, had passed from hand to hand, from lord to lord, first to the Abbey of St. Mary of Maniace, then to the Hospital of Palermo, and finally to Nelson and all demanded taxes.

The dukes who followed each other at the head of the duchy entrenched themselves, fearful and arrogant, within their castle. The building has always been hermetically sealed; never or almost never was it possible for a person of Bronte to visit. In 1981 Maniace became an independent municipality by deducting 2,788 inhabitants from Bronte and 3,590 hectares of land. Unfortunately, the castle was immediately closed to the public to carry out restorations, and various art objects were stolen. The Archives were inexplicably transferred to Palermo. It is inconceivable that Italy has placidly continued to remain enslaved to foreigners.

On 1st January 1820, the Spaniards rose up and forced King Ferdinand 7th to grant Spain the Constitution of Cadiz of 1812. On 2nd July a military insurrection broke out in Nola, forcing King Ferdinand 1 “of the Two Sicilies” to grant Sicily the Spanish Constitution. The soul of the population was in favour of Naples and independence, so at the end of August, they turned against the Deputation of Public Security. The Deputation of Bronte, fearing a vengeful assault, sent a report to the Superintendent of Catania and one to *Floristano Pepe*. In that revolt, no person of Bronte was killed, but as many as 40 enemies lost their lives.

Another phase of history important for Bronte was the Risorgimento era, when *Giuseppe Garibaldi* set sail from Quarto with 1089 young volunteers on 6 May 1860 and landed in Marsala on 11 May. The people of Bronte, who lived in misery and were crushed by heavy taxes, had been angrily deprived on the one side of the vast territory that the King of Naples ceded to

Admiral *Orazio Nelson* and on the other of the possessions that the municipality had accumulated among its already swollen state property. The country's bourgeoisie then opposed in every way the implementation of democratic principles and the recognition of the rights of the people, which the Bourbon himself had finally decided to fulfil. The advent of *Garibaldi* was therefore seen by the population not only as liberation from Bourbon tyranny, but above all, as liberation from misery and a guarantee that their rights would finally be satisfied: suppression of taxes, division of state land and seizure of the Ducea.

A tumult broke out on 2 August 1860 with barbaric ferocity. The English consul of Catania asked *Garibaldi* for help; the latter, who owed England the aid he had received for his war campaigns, promptly responded to the consul's appeal by immediately sending Nino Bixio to sedate the tumult in Bronte. *Nino Bixio*, who was very keen to participate in the imminent landing in Calabria, at *Garibaldi*'s side, settled the whole Bronte affair by direct order. “*I fatti di Bronte*” of 1860 are still felt by the Bronte's people and, strangely, it seems that the hasty execution of the five condemned by *Nino Bixio*'s Military Tribunal aroused more indignation in the soul of the people than the massacre of 16 citizens by the insurgents. The intervention of Nino Bixio and his Military Tribunal placed the town of Bronte and the cruelties committed within its walls before the entire Italian nation and foreign nations, such as England for example, leading it to give a summary and generalised judgements. Consequently, the people of Bronte retain a resentment against the one who so cruelly exposed them to the severe judgement of the whole world.

Additional changes for Bronte occurred during the Second World War when many city people died for the homeland, political dominations changed and the city's urbanistic structure knew differences in decorations and names regarding the squares and streets. The urban development started with the construction of new buildings, and the addition of more churches, considering that there were still only three churches and the population of Bronte has always been extremely religious.

### 3.2.2 *The role of Etna for Bronte*

The Etna, called in the Sicilian dialect 'a *Muntagna*', is described by Sicilian people as a living, dynamic, majestic and irascible creature that the people of Bronte have always been accustomed to living with and that they love in spite of everything.

The history of the city of Bronte is perennially linked to that of this volcano, which has allowed it to extend and enlarge at certain periods and reduced it to more modest proportions at other times, without ever destroying it completely. Its imposing size, rising majestically behind the town, almost as if to protect it, reminds people that are standing in front of the largest active volcano in Europe characterised by almost incessant volcanic activity in the summit craters and frequent lava flows from craters. Sicilians also call it “*Mongibello*” (union of the Latin '*mons*' and the Arabic '*gibel*', namely the 'mountain of mountains').

From Bronte, it is possible to admire the Etna in its most majestic image in different moments: when it moves, it rumbles, it gets angry, it erupts rivers of lava and every time it happens its height varies, it changes. People of Bronte have always had contrasting feelings towards their volcano; more love and veneration than hate, more religious respect than aversion. Instead of fleeing, of running away, the people of Bronte have resisted and continued to cultivate citrus plantations, vineyards, pistachio plantations, all those fruits that the very earth, fertilised by volcanic ash, has always made peculiar in their qualities. (Associazione Bronte Insieme).

Eruptions have always been present in the history of Etna and Bronte from ancient times, but the most tremendous and devastating eruption of the contemporary era is considered the one of 1843; this lasted around 9 days causing the destruction of the Etna territory, burying houses, fertile land, and forests, radically altering it and also erasing from history the first traces of civil organisation of our people and the first signs of settlement. The most remarkable consequence has been the death of 50 people of Bronte. This is what the historian from Bronte, Benedetto Radice narrates. Nonetheless these catastrophic events, especially nowadays, the Etna area plays a crucial role in the economy of the Bronte's territory, since exactly in the volcanic soil the pistachio plantations grow becoming the main economic and tourist resource of the city and also an identifying symbol.

The peculiarity of the pistachio plantations has already been discussed widely; however, it is important to underline that it is exactly the uniqueness of this plant which allows the territory to stand out on the international market of the pistachio where various types of pistachio are commercialized with the help of effective and successful marketing tactics, publicity campaigns, market researches and consumers' preferences. On the other hand, marketing works against the Brontean pistachio since, as was already mentioned, it is very simple to falsify it with misleading labels that deceive customers. Producers of Bronte have become increasingly aware of this over the years as the market for their pistachios has grown, which is why an association was constituted today with the goal of defending it. For instance, in 1971, the “*Cooperativa*

*Produttori Pistacchio Smeraldo di Bronte*”, including 30 farms in the PDO area, was born with the aim of improving, enhancing and valorising pistachio production, with particular reference to the economic aspects of the farms involved, respecting the qualitative and environmental aspects of production.

In any case, the region of Etna encompasses more than just the pistachio market and plantations; it also includes the valorisation of the area's beautiful nature, history, traditions, and associated tourism. To this regard, in 2001, an Association called “*Bronte Insieme*” was born and from that moment has started pursuing objectives in the fields of the protection and promotion of nature and the environment, with the aim of devising, coordinating or implementing projects aimed at enhancing the environment, history, traditions, personalities and the Bronte architectural heritage. Today, it serves as a significant treasure for the Bronte region and its inhabitants, but it also serves as an invaluable tool for anyone who is interested in and curious about Bronte. To increase awareness of Bronte, a complete website with information has been developed. Anyone can use it for free and access books by Bronte's contemporaries, historians, and writers.

### *3.3. Analysis of tourism in the Etna area and Bronte's territory*

The territory of Bronte, as mentioned before, is strongly related to the Etna volcano, to its activity which makes the soil so particular, enriched with minerals thanks to the lava solidified. This uniqueness has been always exploited since ancient times when Arabas brought the pistachio plantation into the island and discovered the Etna area, where climate and soil create the perfect conditions to make grow this special plant.

However, only recently, the economic and touristic potential of this plant has started being exploited making famous the city of Bronte with its pistachio but also the Etna area.

The geography around Bronte, as mentioned before, offers a big variety of landscapes: Nebrodi park, Alcantara park, Simeto Valley, Etna Park, the rural areas of Bronte from which is possible to admire the whole majesty of the Etna, or still the vineyards of Randazzo. This heterogeneity of landscapes permits, consequently, to develop different touristic offers depending on the features of the area considered.

The history of Etna Park started in 1987 when the Etna Regional Natural Park was established including all the municipalities of “PAs in the EMR”<sup>12</sup> with the aim of protecting

<sup>12</sup> Abbreviations for Peripheral areas in the Etna Macro Region. The whole area covers about 3,000 km<sup>2</sup>, has a

natural heritage, restoring and upgrading buildings, protecting agricultural heritage and developing tourism. It comprises thirteen protected natural areas as envisaged by the “*Bioitaly project*”<sup>13</sup>, of which 9 Sites of Community Interest (SICs) and 4 Sites of Community Importance/Special Protection Areas (SPAs).

The importance of the Etna area increases taking into account that Etna's significance increases as a result of its great concentration of historical-artistic, environmental, and gastronomic legacy, as well as the fact that it is a UNESCO World Heritage Site. This is undoubtedly an element that highlights its value and makes it possible for new and appealing types of tourism.

It is precisely in the areas of the municipalities of Etna territory that an increasing number of firms engaged in the production and transformation of a variety of products of designated origin, such as the ‘*Pistacchio Verde di Bronte PDO*’ (Green Bronte pistachios, ‘*Ficodindia dell'Etna PDO*’ (Etna's prickly pear), ‘*Ciliegia dell'Etna PDO*’ (Etna's cherries), and the wine “*Etna DOC*” goes hand in hand with the growth in initiatives stemming from entrepreneurial innovation and focused on touristic development. Over the last few decades, these more developed and stronger PAs have benefited from increased ecological awareness, both from a policy point of view and civic context. (cfr: Arturo Di Bella, Gianni Petino, Luigi Scrofani, 2018)

Image 15: The territory of Bronte seen among Nebrodi Park and Etna Park

population of around 1 million, and includes 61 municipalities which the NSIA (Italian Strategy for Inner Areas) classifies as follows: one pole, that is the city of Catania, 25 municipalities as part of the belt area, and 35 municipalities as inner areas; of these, 17 are classified as intermediate, 13 as peripheral and five as ultra-peripheral municipalities. (Di Bella et al., 2018)

<sup>13</sup> In 1992, the Italian authorities began work on the development of a comprehensive Nature Atlas of their country's fauna and flora. This was also intended to help in the preparations for the designation of special areas of conservation or for inclusion in the Natura 2000 network. This complex project brought together a wide range of scientific institutions, non-governmental and government bodies and was composed of numerous sub-projects. Most concern surveys, maps and inventories that would establish the scientific base necessary for determining conservation priorities throughout Italy. This project was an extension of the earlier Habitat Italia project (LIFE92 NAT/IT/013100).



Source: Google Maps

The Etna region has always been a popular tourist destination, whose popularity dates back to the time of the Grand Tour<sup>14</sup> and is due to landscape, natural and cultural attractions. The gastronomic resources that can be found in the entire area of Mount Etna are equally great. Mushrooms from Nicolosi, apples from Pedara, honey from Zafferana Etnea, sausages from Linguaglossa, strawberries from Maletto, pistachios from Bronte, salads and cherries from Adrano, “*torroncini*”<sup>15</sup> from Belpasso, and oil from Ragalna, among many others. The area boasts Etna DOC for white, red, rosé and Superior White wine, Monte Etna PDO for extra virgin olive oil, Etna PDO for prickly pears, Etna PGI for cherries, Sicilian Pecorino PDO for Pecorino Siciliano and Bronte Pistachio PDO for pistachios. A number of ‘*Slow Food*’<sup>16</sup> presidia are also present, such as the Etna tobacco peach. These resources are part of everyday cuisine but also constitute a particular eno-gastronomic attraction of catering facilities and rural tourism. (Cannizzaro and Corinto, 2012)

<sup>14</sup> In the 18th century the so-called Grand Tour became a rite of passage for aristocratic young men. The journey typically involved three or four years of travel around Europe and included an extensive sojourn in Italy, as Rome was considered the ultimate destination for what might now be characterized as cultural tourism. (Britannica, *The role of the Grand Tour*)

<sup>15</sup> Small nougat.

<sup>16</sup> Originally *Arcigola* and founded in Piedmont in 1986 by Carlo Petrini, Slow Food became international in 1989 as a ‘Movement for the protection and right to pleasure’ and a manifesto of intentions that set the association as an antidote to the ‘universal madness of the ‘fast life’’. It started from the table, from the pleasure guaranteed by conviviality, history and local culture, to arrive at a new gastronomy that also presupposes a new agriculture where sustainability (environmental and social) is essential. Today we renew our belief in the right to pleasure that has led us to safeguard biodiversity and traditions, to educate on taste and conscious eating, to organise the Salone del Gusto and Terra Madre, the greatest international event dedicated to food. (Translated from Slow Food website)

Rural tourism is a type of tourism that has become trendy, this because it seems that today people prefer an alternative experience with respect to the traditional holiday at the beach. In this sense, Sicily Island is a perfect example since it is not only marvellous coasts, but also breathtaking mountains, attractive landscapes, delicious food and the smiley people of the local communities.

A rural experience in Sicily means receiving a warm and familiar welcome in every structure in Sicily, getting to know and experience the unspoilt nature of Sicily savouring the authenticity of local dairy products trying a unique experience in a mountain pasture thanks to initiatives such as 'adopt a cow' or 'adopt pistachio plantations'. Also, visitors can find activities on an educational farm linked to children's charity projects, enjoy the local culinary tradition, along Sicily's food and wine itineraries, discover products with Slow Food presidia learn about and try out some of the ancient local crafts in-person experience sustainable tourism that rediscovers and safeguards Sicily's natural, artistic and cultural treasures have an open-air gym with trekking routes, mountain bike trails, golf courses, mountain lakes and other wonderful settings for outdoor adventure lovers.

The ex-president of the Sicily Region, Nello Musumeci, has declared that:<<Sicily, has also inherited an immense heritage of taste from the past. There, the art of food is almost as winning as that of cultural heritage or natural places, as confirmed by the Report's data, which see the island at the top of the list of destinations for those who travel with the aim of discovering, and rediscovering, unique and extraordinary flavours. This is a result that fills us with pride and encourages us to focus even more strongly on the valorisation and promotion of our typical products in a land that today counts the largest number of Slow Food presidia in Italy and is distinguished by unparalleled biodiversity. “*Trinacria*<sup>17</sup>, therefore, fascinates not only because of the sea, the islands and the Baroque, but also thanks to a wide range of food and wine excellences”>>. (Translated from Regione Sicilia, 2019).

This type of tourism represents the main tourism segment on the island, encompassing a specific fraction of consumers with defined character. Tourists interested in this type of tourism, love food and wine in a professional way or at a basic level being just curious.

Food and wine, if considered as the set of products that exclusively characterise the offer of a territory, it becomes itself an essential component of the character of the tourist offer of a given destination (Asero and Patti, 2009) and this asset can be certainly identified in Sicily.

It is therefore possible to identify geographical differences caused by the different spatial

<sup>17</sup> The *trinacria* in heraldry is a female head with three bent legs (triskeles) moving from it. Furthermore, the three legs indicate the three points of the island.

distribution of agricultural production, quality of food preparation, level of competence of the production and social fabric in the taste of food. Food and wine differences, which are identified with places, can be the basis of a conscious strategy of promotion of the tourist offer of a given territory oriented to intercept the new tourist orientations (UNWTO, 2011).

In this regard, the great variety of products that the Etna area is able to offer, is a perfect example of this mechanism and if considered as a vast rural territory, permits rural tourism to flourish by the promotion of products related to the agriculture tradition present there, the passion for the cuisine of entrepreneurs, the interest of tourist for exploring unspoiled nature, unique types of crops and surprising flavours, everything together with the friendliness of farmers.

Discovering the culinary tradition of a place is becoming more and more a trend quite spread in Italy, which aims to enhance the cultural/food resources of many tourist destinations located in various Italian agricultural and rural areas. (Cannizzaro and Corinto, 2012)

Sicily Island has proven to be highly resilient, particularly in the wake of the pandemics, and is currently working to become more sustainable by setting new goals to achieve.

Looking at the various objectives proposed, Sicily Region would like to put greater attention to product innovation (and more significant consideration of aspects related to environmental sustainability, quality, and safety), not merely the health, of tourism products and services; this is extremely crucial since the sustainability-related matters today have become the main focus of each association and firm. Also, greater attention should be paid to communication and customer relations, through via mass media, social media, and all those new channels of online communication; this also includes greater use of peer-to-peer (P2P)<sup>18</sup> digital platforms to provide SMEs<sup>19</sup> with access to the global tourism market;

Among the current concerns, there is not only the ecological transition<sup>20</sup>, but also the digital one, an objective which envisages the maximization of the use of services; in this way, Sicily search for innovative technological solutions in order to facilitate access to tourism products and services and/or usable in an alternative way to traditional methods.

<sup>18</sup> Personal loans provided by private individuals to other private individuals through business sites or social lending institutions

<sup>19</sup> Small and medium-sized enterprises

<sup>20</sup> It is a movement that goes well beyond the scope of a mere idea. The Transition consists in an implementation of the sustainable development concept. In the face of an ecological crisis, climate change and the depletion of natural resources, alternatives are being developed to ensure the resilience of our society. These transition initiatives are abundant. In order to have a clearer picture of what is at stake, listed below you will find some definitions of the core concepts of the Transition. (Definition from European Observatory of Transition)



In addition, the emphasis should be placed on promoting internationalization, which could intercept (even when demand falls) those overseas countries and tourist segments which are/will be more able to support the level of international demand; This for Sicily should be quite easy since possesses a big fan of touristic offers to meet any expectation. In addition, the effort should be directed to orientating specific tourist segments and offering specialization to the tourist market; doing so, the possibility to attract a bigger number of tourists increases as specific touristic offers, for example, a didactic farm in a rural landscape where there are pistachio plantations, is may what the segment of natural tourists searches for.

Furthermore, Sicily Region believes that to improve its tourist offer, there should be greater integration (vertical and horizontal) between the various levels and actors of the tourism market; in particular, more effective interaction between small businesses in the same sector. This, with the integration of further attention to the employee training and interpersonal skills, including heightened sensitivity regarding professionalism towards the customer given that they are the professionals of the supply side who have the task of specialising in the process of customization<sup>21</sup>.

Finally, greater attention should be paid to data collection and decisions based on empirical evaluation by operators working in the tourism sector (customer profile, customer data management, and demand segmentation).

In order to analyze better the objectives related to the promotion of the territory of Etna would be better to look at the “*Piano Strategico Area Etnea, relazione sulle scelte fondamentali*”<sup>22</sup>, the work of professionals associated with Politecnica<sup>23</sup>.

In this report is remarked how important is the re-consideration of the available resources and their valorisation to project valuable management for a winning touristic promotion.

What the guidelines express is that it should be established a network of dynamic parks, in synergy with the transforming territory and its inhabitants, based on the re-appropriation by local communities of their own identity, which recognises the resources in the area, maintains and enhances them, and provides for the protection of the landscape.

It is precisely from the recognition of the asset as a resource by all the actors in the territory

<sup>21</sup> The action of making or changing something according to the buyer's or user's needs.

<sup>22</sup> Translated: Strategic plan Etna Area, report of fundamental choices. This document mentions all the 28 municipalities of the Etna area which have set up a planification process for the management and improvement of the territory around the Etna.

<sup>23</sup> Politecnica is one of the major Italian associations for projects in the sectors of urbanistic, engineering and architecture.

that a model of protection can be sustained and integrated with local, economic development and use of the resource, also capable of expanding the area's tourist offer, combining the attractiveness of Etna, the Alcantara Valley and the of Alcantara and the Ionian coast with the valuable heritage of architectural and natural heritage of the Simeto Valley. It is, therefore, necessary to complete the protection design of the area with the inclusion of the river of the Simeto and its Valley, so that the exchange of flows along the ecological corridors of regional and continental importance, and through the implementation of forms of governance, favour the initiation of new processes characterised by relations that produce lasting and effective effects in the area.

Specifically, in this report, some objectives related to cultural heritage and tourism are fixed:

- Strengthening of existing tourist routes and the qualification of services and accommodation facilities;
- Improving the competitiveness of the agricultural and forestry sector and diversifying of the rural economy by aiming to increase its competitiveness;
- Promoting actions to support research and innovation in order to strengthen the competitiveness of the local economic system by fostering collaboration between enterprises and research organisations within strategic sectors, supply chains and production clusters;
- Incentivising productivity and quality certification of enterprises and production processes; production processes;
- Improving entrepreneurial and professional skills and strengthening local production systems;
- Enhancing the agricultural and natural system of the volcano, envisaging a new form of 'tourist entertainment' aimed at the creation of a true 'natural gastronomic park "that lends itself to weekly "kilometre-long by the metropolitan population, with a view to a short supply chain and quality.
- Develop integrated policies between local authorities and the various sectors of economic production sectors, with the aim of thinking of the territory as a laboratory for

technological innovation and environmental sustainability;

In order to provide a clearer analysis of the planification, objectives more specific have been elaborated that have as focus the enhancement of cultural, environmental and landscape resources and the tourism and heritage use. The intent is strengthening the naturalistic value and identity of territories through the enhancement of the Sicilian ecological network, which systematises and promotes the areas of high naturalness and preserves their biodiversity;

Moreover, enhancing the unique and widespread cultural landscape in the territory through actions that provide for the maintenance and dissemination of cultivation techniques, constructions and local traditions (fairs, festivals, events); this, without omitting the enhancement of the minor heritage in rural areas and possible creation of new routes that integrate nature with the cultural and food and wine heritage, improving the attractiveness of the area and the enjoyment of tourist assets;

Tourism needs also new objectives, therefore becomes necessary implement the idea of tourism that respects the constraint of sustainability and thus conservation over time of tourist resources and environmental balances, capable of safeguarding and enhancing identities, specificities and excellence, supported by forms of governance that enable the sharing of objectives strategies and tools; enhancement of the agricultural and natural systems of the volcano prospect of a unique and innovative form of tourist entertainment linked in addition to the enjoyment of natural, historical and architectural resources, also to the production of typical products.

It is essential also working to de-seasonalise typical summer-bathing tourism and diversifying the tourist offer, enhancing the different types of alternative tourism possible in the area (health, religious, cultural, rural, sports-naturalistic, conference tourism) and creating synergies between operators to propose innovative and integrated offers, thus promoting longer stays by tourists.

The planning envisages, moreover, the developing and upgrading of accommodation facilities and tourist services, strengthening them numerically in inland areas and qualitatively in areas with a higher concentration of flows; creating an effective networking system of tourist facilities and services, also of tourist services and through the provision of telematic information systems.

It is crucial also strengthening the tourism promotion tools and create a brand that can allow the product to be identified with the territory and that can represent a cohesion factor within the system and systematise the museum, archaeological and architectural heritage and cultural and artistic activities for tourism purposes, architectural heritage and cultural and artistic activities that can be traced back to local culture.

Planning these strategies becomes essential today since territories with specificities (traditions, language, culture, cuisine, history, artistic heritage), like the one of Etna, will be able to play a role as protagonists, while knowing that they are 'different' from the majorities. We are discovering a target of travellers increasingly attracted to not only by the historical and scenic resources of a location, but also by the gastronomy of that area. In fact, thousands of tourists travel kilometres to taste wines, visit wineries, and taste ham and salami: this is the phenomenon of *cibus tourism*<sup>24</sup>.

The food and wine experience, therefore, finding a well-defined geographical location thanks to the close link of the typical product to the territory, can assume a driving role for rural tourism, as it is a privileged form of valorisation of the products of the territory. (Translated from: Suaro, 2013)

After analysing the Etna region and its primarily rural tourism, it is crucial to specifically characterize the tourism in and around Bronte.

Considering that Bronte city is located at the slopes of Etna, as it has already said, its soil is primarily the result of the lava flows; this, rich in minerals, when solidifies, give birth to a flourishing soil in which pistachio plantation are cultivated becoming the icon of the territory and giving the name to the city of Bronte, the name "*Città del pistachio*"(city of pistachio), which can be seen written on the label at the entrance of Bronte in the writing "*Benvenuti nella città del pistachio*".

The Green Pistachio of Bronte, a little but fertile treasure, is able to generate special tourism for its city and the territory around it. Even if, today the types of pistachio commercialized are various, the one of Bronte should not be confused since has precise characteristics in colour and aroma and this is the reason why can attract a big number of curious visitors who cannot wait to taste a unique product.

In order to collect more precise information about the tourism of Bronte and its related pistachio, a written interview to the president of Pro Loco Bronte, Dario Longhitano, has been

<sup>24</sup> Singular way that the mentioned author has to call the food tourism

conducted<sup>25</sup>; the following are questions and answers from the interview.

**“Have you observed a specific segment of people, in terms of gender, age, or other variables, who are attracted to pistachio?”**

*There is no specific segment of people attracted by pistachio. Pistachio attracts both men and women in a very wide age range between 20 and 70. If I had to give a name to the target I would speak of food and wine tourism of medium quality, people come to eat pistachio in its various forms but not everyone pays attention to the PDO certification of the product, an undisputed symbol of the quality of our product.*

In fact, pistachio seems to suit everyone, families with children, groups of friends, professionals of food sector, but it is possible that the segment of school groups is uncovered. This because many farms engaged in the marketing of pistachio are already realizing across-the-board activities as tours around the plantations of pistachio.

Instead, with regard to the school groups, Dario Longhitano affirms:

*There are still no educational activities for schools to show children the process of growing, harvesting and processing pistachios. A similar activity is, however, designed for tourists who, upon reservation and payment of a fee, can enjoy this magnificent experience.*

This surely, could be a point of the pistachio’s promotion that can be improved through collaborations with schools to teach, in this way, to the children of schools the importance of a PDO product, spending time surrounded by nature and transmit the importance of quality in the food sector.

In order to understand deeper the pulling factors of the pistachio products:

**Have you observed any preferences among tourists and pistachio enthusiasts for pistachio by-products (creams, pestos, cheeses with pistachios added, etc.)?**

*The response received was that among the pistachio by-products, tourists and enthusiasts preferred pistachio creams and pesto the most. The Pro Loco in 2017 managed to create an innovation in the festival by creating a miniature taste salon in the central square where chefs,*

<sup>25</sup> The reference to this interview has been declared already in the previous chapters.

*pastry chefs and ice-cream makers every day did show cooking and explained to visitors how to use the product in its phases, from the raw material to the semi-finished products, it was observed that the knowledge and explanation of famous chefs expanded the use of many creams and especially pistachio concentrates.*

In fact, the Expo of the Green Pistachio of Bronte<sup>26</sup>, as how today is called, is a key event since permits the spread of the pistachio and its by-products in an excellent way, through the collaboration of farms, shops, entrepreneurs, and chefs, this product manages to win over everyone.

Nonetheless, Bronte could have the potential to develop more with the pistachio, so:

**Apart from the Bronte Festival, are there any pistachio-related tourist events of significant importance?**

*No, apart from the Bronte Pistachio Festival, there are no other tourist events related to the pistachio. Another element of notable importance is the inability on the part of the Bronte people to create other events of strategic importance, again the Pro Loco in 2016 proposed the creation of a 'Museo del Pistacchio Verde di Bronte' together with the Consortium for the Protection of Pistachio as a quality attraction open all year round where events of international level could take place; many companies are not ready to sponsor it because they lack a vision of a general network and are only closed to subjective profit maximisation.*

This is certainly a weakness for the pistachio-related economy of Bronte; it possesses the PDO, which increases the value of its area together with the organisms engaged in the protection of this pistachio, hence there is already a good starting point for attracting more tourism. Unluckily, the people of Bronte still have a closed view, even if the majority of pistachio produced is exported to foreign countries, and have not invested in more actions to make spread this special good enough and so tourism activities.

With regard to the *Museo del Pistacchio Verde di Bronte DOP*, was born from through a project, as Dario Longhitano declares, from an analysis of the real territorial needs for the valorisation of the prime product of Bronte's agriculture and for the contextual development of local tourism. The museum therefore wants, by seizing the opportunity to satisfy a territorial

<sup>26</sup> Also known as “Sagra del pistacchio di Bronte” or “Festival del pistacchio di Bronte”

need, to create

development through the increase of tourist flows connected to one of the rapidly expanding forms of tourism, the eno-gastronomic one. This idea connects precisely with the vocation of territorial development with which Sicily proposes itself to the territory.

The project articulates in a multifaceted way to at least 3 areas namely:

*Culture:* The development of a museum is by definition a vehicle for culture, specifically the culture it develops is linked to the maintenance of both a rural culture and local traditions of cultivation.

*Agriculture:* a very important theme for which the Museum wants to be the spokesman is the ecological transition towards sustainable cultivation. For this reason, the Museum proposes the role, in collaboration with the local high school secondary school of agriculture, as a promoter of this idea by realising courses and projects for the study of new cultivation methods in the field.

*Tourism:* the creation of a new attraction will be a vehicle for new tourist flows. Specifically, according to the presence statistics in the area that see 3 out of 5 visitors coming to the town of Bronte to learn more about the green gold, the idea will give substance to the international fame of the Bronte Pistachio but is lacking in promotion and enhancement.

Still:

**According to your statistics, what have been the most supportive means of promoting pistachio so far?**

*The festival has always represented the first and most effective means of support for the promotion of pistachios. Important, however, are also 'word of mouth' and the use of social networks. In any case, the Bronte pistachio has already acquired particular worldwide notoriety since it obtained the PDO certification.*

Indeed, the festival of pistachio in Bronte welcomes an incredible number of tourists every year and is able to make fall in love with each person who tastes the excellences of pistachio. Undoubtedly, marketing tools give relevant support for its promotion, mainly on Instagram, which today is one of the social networks most used, people can find posts with delicious and gourmet recipes or reels of explanations of recipes, still, videos where products of restaurants, bakeries or shops are reviewed. What may lack on the socials, is the spreading of knowledge about pistachio, for instance, “How to recognise an authentic green pistachio of Bronte”, or

something about its history and cultivation. It is possible that consumers, having more information about its regulations, real prices, and characteristics, will make more conscious expenditures.

Meanwhile, the online promotion of the pistachio of Bronte is quite effective thanks to the launching of different websites with an informative aim and related e-commerce where consumers have the chance to buy it from whatever part of the world and in different forms. Often producers sell pistachio in its natural state with shell and unshelled, still peeled, peeled and minced, as flour and as a natural paste. From these forms, some by-products are obtained: spreadable sweet cream of pistachio, pistachio pesto, pasta made with pistachio flour, salami covered with minced pistachio, and cheese with chokes of pistachio, just to mention the most sold.

With reference to its uses, can be said that it is traditionally used by the pastry chefs of Bronte as an ingredient for ice creams, pastries, creams and liqueurs.

Below, some images with only illustrative aims will follow to provide a more concrete idea of the pistachio products mentioned.

Image 16: Unshelled Green Pistachio of Bronte



Source: my portfolio

Image 17: The minced Green Pistachio of Bronte.





Source: my portfolio

It has already been said that in Bronte, apart from the festival of the pistachio, there are not so many initiatives able to attract tourists and increase their knowledge about the pistachio of Bronte and its territory. Nonetheless, each farm tries to give its contribution by sponsoring events like visits for tourists around the pistachio plantations together with a tasting of typical products.

For instance, the firm “*Arrichigghia*” in Bronte, offers visitors a walk among the Bronte pistachio trees on the slopes of Mount Etna, a visit to the processing plant of the famous Sicilian pistachio and a tasting of the Bronte Pistachio PDO and delicious pistachio products.

A further brilliant idea comes from the firm of Bronte “*I lochi*” which permits lovers of pistachio to adopt a pistachio plant and become a digital farmer. People interested can choose a tree and follow its natural growth and cultivation. Moreover, they are always in contact with the farmers who grow the trees in adoption and, when the time is right, they will receive their fresh, guaranteed pistachio nuts directly at their door. The farmer cultivates and shares his work with them, they control and are sure of the genuineness and origin of the products which arrive at their table.

Coming back to the topic of rural tourism, recently a new form of rural tourism is spreading, called WWOOF<sup>27</sup>. This is a worldwide movement that connects visitors and rural nature projects by promoting educational experiences in order to build a global community aware of ecological farming practices. Travelling members, or “WWOOFers”, share the rural everyday life with their host and learn sustainable farming techniques by spending about half the day helping on the farm. So, this form of tourism exists also in Italy and is already present in many territories.; in Sicily currently, only 42 collaborating farms exist and in the territory of Etna only 3. Given that there are numerous farms in the area of Etna Park, each specializing in a distinct commodity, this is a modest number that might rise.

Surely, the purposes of this movement are able to connect tourism and sustainability, hence the valorisation of local products and the inclusion of local producers. Sadly, no farm of Bronte today is taking part in this project, which may boost the reputation of its territory, its pistachio and expand its tourism in a more inclusive way. The opportunity to get free housing and meals while learning the fundamentals of farm life in Bronte, caring for pistachio plantations, and participating in the manufacturing of by-products could be an inspiring experience, especially for foreigners. This initiative needs to be marketed further because it may mark a turning point for the entire island's tourism, not just that of the Bronte and Etna region.

### *3.4. Sagra del pistacchio di Bronte*

As Dario Longhitano affirms, the festival of pistachio of Bronte or as it is known since when it was born, Sagra del pistachio di Bronte, today represents the main event for the city to sponsor and promote the green product in the most effective way.

Dario Longhitano was asked to tell the story of this special festival and he starts saying that the pistachio festival was born about thirty years ago from an idea of the Bronte Proloco and its president Zino Petronaci.

The very first one took place inside the courtyard of the primary schools in Piazza N. Spedalieri. Over the years, it has evolved in size and the number of visitors present has gone from occupying a small space of a courtyard of 80 square metres to now filling the entire Corso Umberto for more than 4 square kilometres. Visitors have gone from a minimum of 500 to over 60,000 in two weekends. The festival began as an event dedicated to the pistachio fruit and

<sup>27</sup> World-wide Opportunities on Organic Farms

therefore always goes out of its way to valorise the common places and traditions of the town that are an essential part of the Bronte citizenry. It is difficult to describe how a simple event has now become a world showcase for pistachios.

At the beginning, the Proloco tried and still continues today, to highlight not only the pistachio but the town with its culture and monuments, organising guided tours and protecting places recognised as unique. In the past, the festival used to be held along the streets of the historic centre, but today, with all the security laws, it is impossible to reintroduce that kind of event, which, however, was much appreciated by visitors, because it was there that the citizens lived, who opened their garage doors and creatively invented displays to tell the story of the cultivation and harvesting of the pistachio PDO (at that time, only Bronte pistachio). For the past 15 years, the festival has been held in the town's main street (Corso Umberto) where all the exhibition stands are located and sometimes the number of visitors is so high, especially on the cake-cutting day, that it takes 30 minutes to walk 200 metres. Today, the cycle of the festival as an event is at a turning point, changing ways of promoting, the scale of some territorial companies requires a new management format, but it is still organised by the municipality and therefore not managed in a way that makes it a quality event, but rather tries democratically to please all the subjects that revolve around the various administrations that follow one another. But in our country, we have always recognised the festival as an important opportunity to make pistachio and its derivatives known not only to the people of Bronte, but also to people all over the world.

Hence, every year, apart from the COVID-19 period of the enclosure, the Expo of pistachio of Bronte has been celebrated between the end of September and the end of October for 10 days. The last one has been celebrated from the 30<sup>th</sup> of September until the 9<sup>th</sup> of October of 2022.

Today, anyone who comes to Bronte during the festival period is enchanted and cannot resist tasting all the pistachio delicacies that restaurateurs, traders, and pastry chefs offer at the various stands from savoury to sweet.

Image 18: Festival of Bronte Pistachio



Source: Association “Bronte Insieme”.

Nonetheless, the festival is not only food, but also cultural tourism and music; in fact, The Pro loco Bronte on the occasion of the *XXXI Sagra del Pistacchio DOP di Bronte* has been pleased to present a tourist itinerary to discover the places of Bronte's culture and art. For this occasion, guided tours for large groups have been organised by reservation with the aim of making discover tourists the cultural and historic heritage of the city. All the steps planned are listed below in the illustrative map.

Image 19: Touristic itinerary of Bronte planned for the Expo of Bronte.



Source: Municipality of Bronte

Making reference again to the culinary part of the festival of pistachio urges to highlight some of the delicacies that have been proposed to the visitors and that add prestige to the green gold of Sicily.

Surely, one of the most typical dishes of Bronte is “*pasta alla brontese*”, a plate of pasta accompanied by pancetta<sup>28</sup> and cream and decorated with pistachio grains, but this is just the beginning of the great gastronomic offer. Since it is quite complicated elaborate a selection of the top products of the Sagra, a blog of pistachio of Bronte, called “*Pistacchissimo*”, has created a guide to orient visitors around the stands of pistachio, restaurants, bars and little shops during the days of the festival.

Many locations are indicated in this helpful guide, although only a few of them will be mentioned here to let readers the pleasure to appreciate them personally and have a sensational tasting experience.

The first suggestions can be found in the “*Caffè Galaxy*” stand (Piazza Piave), where pistachio lovers will be able to taste pistachio desserts (*aragostina*<sup>29</sup>, *cornetto*, *iris*<sup>30</sup>, cake, pastries...), pistachio *lasagna*<sup>31</sup> and pistachio *Cuoppo di Fritti*<sup>32</sup> (vegetarian and vegan).

Image 20: In the first line, the *aragostina*; in the second one, the iris with ricotta and pistachio.

<sup>28</sup> Italian type of bacon.

<sup>29</sup> Sicilian version of sfogliatella napoletana

<sup>30</sup> A kind of filled krapfen or brioche doughnut, typical of Sicilian gastronomy.

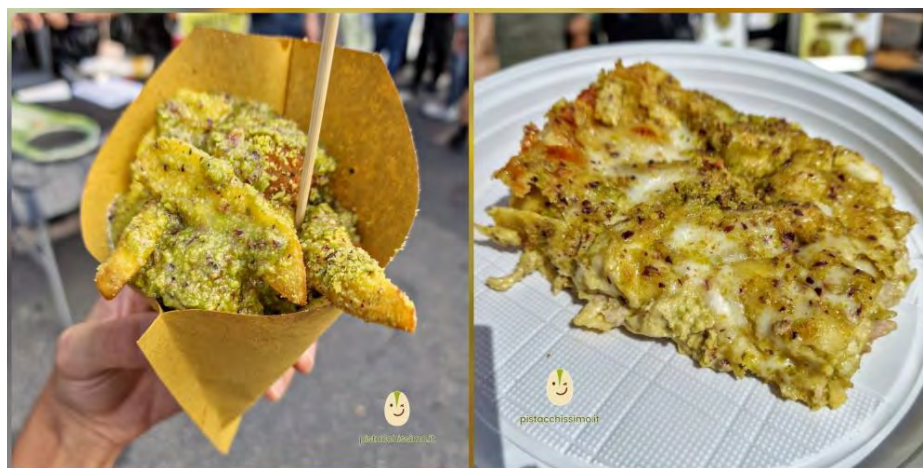
<sup>31</sup> Is a type of pasta, made of very wide, flat sheets and in this case, covered with pistachio pesto and pistachio grains

<sup>32</sup> *Cuoppo* is a symbol of Neapolitan Street food. Basically, is a paper cone filled up with in this case, some fried snacks enriched with pistachio



Source: Food Blog *Pistacchissimo*.

Image 21: On the left, the *cuoppo*; on the right, the *lasagna*.



Source: Food Blog *Pistacchissimo*.

Stand '*Gusto Etna*' (Piazza Piave) follows showing visitors pistachio panettone, pistachio cake pistachio pesto (various flavours and formats) and Goody Cream (milk-free / vegan).

Image 22: On the left, pistachio cake; on the right pistachio *panettone*.



Source: Food Blog *Pistacchissimo*.

In order to savour quality meat, according to *Pistacchissimo*, the best choice is undoubtedly the '*Pastificio il Mattarello*', which sells various formats of fresh pasta, such as the extraordinary ravioli stuffed with pistachio meat. Fresh pasta of incredible quality, always made fresh. Accompanied by good pistachio pesto, it is a real feast for the eyes and palate.

Image 23: Fresh ravioli made of pistachio flour, filled with meat enriched with pistachio and covered by pistachio pesto.



Source: Food Blog *Pistacchissimo*.

Along Corso Umberto and just before the large *Piazza Spedalieri*, can be found the large ‘*Evergreen*’ stand where tourists will find lots of sweets with their Green Pistachio of Bronte PDO, a true Bronte excellence. Some of the products that will be presented are: Ice cream, cream to put in freshly made hot waffles. Cannolo<sup>33</sup>, with delicious pistachio custard and lots of grains. Crêpes, a tasty, full-bodied dough with pistachio cream inside. All with 100% natural colour and taste.

Image 24: On the left, the *cannolo* and on the right a wafer with inside pistachio ice cream.



Source: Food Blog Pistacchissimo.

As a last suggestion, it can be mentioned ‘*Sicula Carni*’, an ‘off-track’ stop that might interest visitors who want to have a taste of their very famous pistachio sausage! The meat is of excellent quality, with pistachios mixed in between that confer a fantastic aroma that enhances the meal

<sup>33</sup> Tube-shaped wafer and fried, inside filled with various creams



Image 15: Pistachio sausage enriched with pistachio grains.



Source: Food Blog *Pistacchissimo*

Through these indications certainly, tourists will be able to enjoy better their visit to Bronte marked by the unique quality of the Green Pistachio of Bronte.

## 5) Bronte pistachio and circular innovation

### 5.1 Circular economy and food application

#### 5.1.1 The transition to the circular economy

From ancient times, the classic productive system found its foundations in the linear economy which entails the exploitation of raw materials, their re-elaboration for the production of secondary products, and subsequently, these products, taking into account that have to be seen in a “life cycle”<sup>34</sup>, are not used anymore and become just waste.

This model based on a society having close ties with consumerism finds some contrasts after the mid-1990s, precisely in a report presented by the European Commission entitled "*The Potential*

*for Substituting Manpower for Energy*", whose authors are *Walter Stahel* and *Genevieve Reday*. This report outlined the vision of a circular economy and its impact on job creation, conservation of resources and waste reduction.

Some years later, the promotion of the circular economy was identified as the national policy in

China's 11th five-year plan from 2006. Only recently, some steps onward have been done, for instance, a crucial step has been the establishment in 2010 of an independent body, The *Ellen MacArthur Foundation* outlining the economic opportunity of this model.

Before discussing the objectives of the circular economy and what it wants to achieve, it is essential to outline the three principles on which it bases: the elimination of waste and pollution, the circulation of products and materials (at their highest value) and the regeneration of nature; all together aim at driving a responsible and sustainable consumption of products which is not anymore linear but circular.

The model wants to transform every element of our take-make-waste system: how we manage resources, how we make and use products, and what we do with the materials afterwards. Only then we can create a thriving circular economy that can benefit everyone within the limits of our planet. (Source: Ellen MacArthur Foundation)

<sup>34</sup> The theory of Life Product Cycle, was introduced by Raymond Vernon. He proposed a model according to which there are five stages in a product's life cycle: Introduction, Growth, Maturity, Saturation, Abandonment or Decline. These phases represent the length of time of a product in relation to the producer and to the consumer. Once the product is considered not useful, it will not exist anymore in the market becoming so waste.

With regard to the first principle, the solution stands firstly in the design of the products, since if they are designed to be disposable like packets of snacks, then, they cannot be reused, finish into the trash and finally, the problem of the management of waste arrives. Otherwise, if the product is designed to be re-used and regenerated, the solution comes itself.

Looking at the second principle, the circulation of products and materials means keeping materials in use, either as a product or, when they can no longer be used, as components or raw materials. In this way, nothing becomes waste and the intrinsic value of products and materials is retained. (Source: Ellen MacArthur Foundation)

Nonetheless, if the circular model could be activated, it is crucial the design of these products which entails, for instance, avoiding the blending of fibres and plastics that cannot be separated and become just waste, with no possibility of a second life.

By following this principle, the linear economy's direction and model are revolutionized, finite resources can be kept out of the environment and in the economy, and biodegradable materials can be securely returned to the earth.

By shifting the attention from extraction to regeneration and by converting our economy from linear to circular, the result would be creating natural capital rather than perpetually destroying nature. The farming techniques used, let nature regenerate soils, boost biodiversity, and replenish the soil with biological resources. The land utilized to grow them is currently depleted of nutrients and the majority of these resources are lost after usage.

Today, the essential point is starting to resemble natural systems, so that switching to a regenerative model could be possible. On this basis, it should be considered that in nature, there is no waste, on the contrary, each element is connected to another one to permit the natural cycle to continue. In fact, if a leaf that falls from a tree contains nutrients for the forest and natural systems have self-regenerated for billions of years. The real problem is that humans invented waste and now managing it becomes increasingly challenging.

Nonetheless, affirming this is reductive, in fact, another aspect to consider is the presence of some barriers at the legislative, social and technological levels and the lack of adequate financings which avoid a practical application of this model.

It has to take into account that often companies frequently lack understanding, expertise, or the capacity to implement circular economy solutions; this, together with the fact that the type of systems, infrastructure, economic theories, and technology in use today may force the economy to operate in a linear way.

Another problem regards the insufficiency of investments in initiatives to increase productivity or alternative business models, since they are viewed as risky and complicated to

apply.

In addition, prices frequently do not reflect the full cost of consuming resources and energy for society, there may still be little demand for sustainable goods and services, especially if they require behavioural adjustments.

Also, the political sector shows some barriers, in fact, the political commitment aimed at promoting the shift to a circular economy is insufficiently strong and consistent.

The creation of a shared value involves the management of resources and the management of waste and in this way, a responsible and precise design which is able to minimize as much as possible the damaging effect on the environment as the loss of biodiversity, the pollution mainly in the sea, and the climate change provoked by the accumulation of biomass which in turn gives way to the greenhouse emissions.

We are contending with a rise in the demand for raw materials and a shortage of resources at the same time. Many of the raw materials and resources necessary for the economy are finite, but the global population continues growing and consequently, the demand for these finite resources is also increasing.

As a result of such a requirement for raw materials, several EU member states are dependent on other nations for their supply. We also cannot underestimate the effect on the climate: the extraction and use of raw materials have a significant negative impact on the environment and increase energy use and carbon dioxide (CO<sub>2</sub>) emissions. Using raw resources more wisely could result in fewer CO<sub>2</sub> emissions. (European Parliament, 2022)

Taking into account these concerns of global interest, an ecological transition is now, more than ever, essential and necessary and clearly, a circular economy has to be implemented more gaining all its benefits.

The advantages that this revolutionary economy can bring are several and they can be obtained through measures such as waste prevention, eco-design and material reuse, which would permit to European companies save and make savings and reduce total annual greenhouse gas emissions at the same time.

Currently, the production of the materials we use every day is responsible for 45% of CO<sub>2</sub> emissions at global level, according to the European Parliament, but a well-managed transition to a more circular economy can bring numerous benefits, including reduced pressure on the environment, greater security of raw material availability, increased competitiveness and impetus for innovation and economic growth (a 0.5% increase in GDP). With the circular economy, consumers will also have more durable and innovative products that save money and improve

their quality of life.

In March 2022, the Commission published the first package of measures to accelerate the transition to a circular economy, as part of the “*Circular Economy Action Plan*”. The proposals included in the plan aim at boosting sustainable products, empowering consumers for the green transition, revision of the *Construction Products Regulation* and a strategy for sustainable textiles.

In November 2022, the Commission proposed new EU-wide rules on the packaging. These include a proposal to improve the design of packaging, provide it with clear labelling and incentivise reuse and recycling. The proposal also includes a transition to bio-based, biodegradable and compostable plastics.

Image 24: Mechanism of circular economy



Source: European Parliament

### 5.1.2 Circular economy applied to the food sector

When discussing the ecological transitions and its objectives and the whole sustainability sector, it is essential to take into account some factors such as the continuous global growth of population, the problems of hunger linked to the mismanagement of resources and also to the depletion of them and the global warming due to the greenhouse emissions. These issues, bring all the governments of nations to take some actions to minimize the effects of this catastrophic situation.

In particular, it seems that it is the food sector that is most at risk, where every year tons of food waste accumulates. According to FAO's State of Food and Agriculture (2019) report, around 14 percent of the world's food (valued at \$400 billion per year) continues to be lost after it is harvested and before it reaches the shops; while UNEP's Food Waste Index Report shows that a further 17 percent of our food ends up being wasted in retail and by consumers, particularly in households. According to FAO estimates, the food that is lost and wasted could feed 1.26 billion hungry people every year. Food loss and waste (FLW) also account for 8-10 percent of global greenhouse gas emissions (GHGs), contributing to an unstable climate and extreme weather events such as droughts and flooding. These changes negatively impact crop yields, potentially reduce the nutritional quality of crops and cause supply chain disruptions. Prioritizing the reduction of food loss and waste is therefore critical for the transition to sustainable agrifood systems that improve the efficient use of natural resources, lessen their impact on the planet and ensure food security and nutrition.

The 2030 Agenda for Sustainable Development calls for the halving of per-capita global food waste at the retail and consumer levels and the reduction of food losses along production and supply chains, including post-harvest losses (SDG target 12.3). Achieving this target would have significant implications for the fight against climate change. (FAO, *Tackling food loss and waste: A triple win opportunity*, 2022)

It is stated, according to FAO, that the system of production and consumption of the food sector is the one showing the most evident impact on the environment and society. The production of food has contributed to climate change, biodiversity loss, azote and phosphor alterations and the changes linked to the use of agricultural soil, mainly the intensive one and with the use of harmful fertilizers. It is important to understand that satisfying the global population's needs would be increasingly difficult year after year and the whole productive system will show results even more destroying for the environment and the economy.

What has happened is a separation between agriculture and ecology, between production and consumption, to which an increasing de-symbolization of the agricultural soil has come together (translated from: Vasavi, 2013). On the contrary, today these separations should not exist and each sector should influence in the most positive way the other, bringing benefits to the environment and to society.

Society may be re-educated, since it has been acculturated to a life in continuous movement which requires fast options and this has given way, unluckily, to the success of industrialized and

processed food of fast food. Logically, industrialized food is a synonym for massive and intensive production which goes against the principles of sustainability which entails responsible and aware use of agricultural soil without using fertilizers and chemical compounds or still, preferring fresh food and traced food coming from local firms to support local producers.

It is crucial to teach society the mechanism of the food system to transmit to them how much the agriculture sector is important but also to convey a sense of responsibility in the selection of the products to avoid as much as possible food waste.

Taking into account these premises, it can be affirmed that food becomes the protagonist of this ecological transition towards a more sustainable system based, not anymore on a linear economy, but on the circular one.

Today is even more essential than ever considering the global problems (effects of COVID-19 pandemics, the natural catastrophes, rising hunger in certain countries and the War Russia-Ukraine) that are affecting the entire ecosystem and the hope is building a more diffused awareness. Only by being aware of which are current issues, that change is possible and give a possibility to the circular economy.

Certainly, the food sector is one of the most relevant sectors of application and development; nonetheless, a better efficiency of productive systems cannot be sufficient for the achievement of a production and consumption model which could not be defined as sustainable, and co-efficient if not connected with objectives of socio-economic nature. This is particularly evident when looking at food as a tool to achieve the SDGs (Sustainable Development Goal 2030).

In particular, this whole mechanism is expressed in the “wedding cake model” proposed by *Rockström* and *Sukhdev* which aims at demonstrating how the potential of food has the ability to contribute directly and indirectly to the achievement of the 17 objectives of the *Agenda 2030*.

Several relations link the SDGs through food, one of the more evident is: the objective 12, which is referred to sustainable production and consumption, and is directly connected to the creation of a new relationship between producer and consumer (objective 17). (cfr: Franco Fassio, Nadia Tecco, 2018)

This model is directly connected to the idea of interconnection and circularity where one action influences the other creating a new paradigm, a new system able to modify the habits of every single person. In this context, planning becomes indispensable while considering also the time factor. Time is necessary in order that the experiences of circularity, these first steps towards the change, could adapt to different contexts and enterprises’ necessities seen in the food

system; in addition, the aim is modifying the normative and political framework by creating so a favourable habitat for the creation of new and unforeseen relations. Hence, today food can be seen as an opportunity to make develop a circular economy and find a new balance. (cfr: Franco Fassio, Nadia Tecco, 2018)

These are the reasons why nowadays society should be re-educated in relation to the food system; modifying little actions such as buying, cooking, eating, producing, keeping and transforming food can bring little changes and sustain this new model. It is essential to be aware of these relationships up to re-evaluate the agri-production which may the basis of the whole food system. In this way, the final aim is diffusing a new culture which could have beneficial effects on the environment.

#### *4.1.3 From food waste to by-products*

Until now, it has been analysed widely the mechanism of the circular economy applied to the food sector and the crucial role of food waste.

Today we should take into account that food production and processing both in developed and developing countries generate high levels of waste and by-products, causing a negative environmental impact and significant expenses. However, these biomaterials have ample potential for generating food additives which in turn will minimize malnutrition and hunger in the developing countries where it is produced. Many of these biomaterials are a source of valuable compounds such as proteins, lipids, starch, micronutrients, bioactive compounds, and dietary fibers. Additionally, antinutritional factors present in some by-products can be minimized through innovative biotechnological processes for use as a food additive or in the formulation of balanced food. In this context, the use of these biomaterials is a challenge and provides a great opportunity to improve food security and boost sustainability. (cfr: Teixeira, 2018)

Particularly, agricultural production and agro-industrial processing generate a high number of by-products and waste that following the principles of circular economy, can be recovered by generating innovative products.

Looking at the fruit by-products such as bagasse, peels, trimmings, stems, shells, bran, and seeds, currently, account for more than 50% of fresh fruit and have at times a nutritional or functional content higher than the final product (Ayala et al., 2011). Fruit and food waste is also generated by damage during transportation, storage, and processing. The growing popularity of



fruit juices, nectars, frozen and minimally processed products has also increased the production of by-products and wastes in recent years. (cfr: Teixeira, 2018)

This new mechanism today becomes more than ever essential to fight against food waste and global hunger; the agriculture sector is doing some steps forward to transform its way of producing finding more sustainable solutions and trying to manage in a better way the wastage problem, but also other sectors such as the textile, packaging and cosmetics ones.

Food wastes and by-products are of paramount importance here due to the presence of sufficient quantities of essential nutrients such as proteins, lipids and dietary fibers. Especially protein deficiency and associated malnutrition are one of the serious problems in most of the developing countries (Müller and Krawinkel, 2005), but today a turning point is possible.

Value-added product generation can benefit infrastructure development, transportation, food processing, and packaging industries. This contributes to the reduction in waste accumulation and results in significant financial benefits.

Proper use of food waste and by-products as raw materials or food additives, could generate economic gains for the industry, contribute to reducing nutritional problems, would produce beneficial health effects and would reduce the environmental implications that generate mismanagement of waste, hence it represents a solution in the long term.

Presently, industries are interested in innovations so as to obtain zero waste, where the waste generated is used as raw material for new products and applications.

In this context, new technologies play a relevant role in the modification of bio-compounds; in some cases, these alterations involve the content of proteins, essential amino acids, fatty acids and vitamins. There are some wastes which are used to fortify some foods, for instance those which increase the level of proteins.

This happens mainly with fruits, seed and nuts, rich of valuable nutrients in each their part. These by-products represent a rich source of valuable bioactive compounds (polyphenols, alkaloids, flavonoids, carotenoids, glycosides, tannins, saponins and terpenoids) with high antioxidant activity, which can be extracted through biotechnological methodologies for future industrial applications. These compounds can be considered a gold mine and should be exploited as much as possible since are beneficial for our health. In this context, the management of fruit by-products is challenged to move from a linear economy to a circular economy. (Débora A. Campos, Ricardo Gómez-García, Ana A. Vilas-Boas, et al., 2020, *Management of Fruit Industrial By-Products—A Case Study on Circular Economy Approach*)

Moreover, extracts can be employed to create functional food items or used as functional ingredients because of their biological properties, such as antibacterial, prebiotics, and antioxidants. Additionally, when compared to currently available products on the market, ingredients of cellulosic origin can be used directly in non-food industries like the paper and biodiesel industries, as well as sustainable packaging, which can help to lessen the environmental impact of secondary raw materials on the environment.

Certain BCs are present in high quantities, might not be easily accessible, and could need to be pre-processed in order to facilitate extraction. Depending on the fruit processing technology (e.g., drying and dehydration, pressing, fruit jams, canning, jellies), solid (e.g., pomace, pulp, peels, cores, seeds, and stems) as well as liquid (e.g., juices, wash water, chilling water and cleaning chemicals) by-product streams are produced. Most of the processed fruits are highly fermentable and perishable, mainly because of high moisture (80–90%), free soluble sugars (6–64%) and crude protein (10–24%) contents. However, these by-products also retain a significant amount of BCs such as phenolic compounds, pigments, dietary fibre, essential oils, enzymes and organic acids, which can be extracted and exploited mainly as commercially valuable materials for food, pharmaceutical and biofuel industries.

In order to understand deeply the potential of bioactive compounds for industries and finally, for consumers, may is necessary to explain the activity of antioxidant compounds.

Food additives are molecules which are introduced in foodstuffs to carry out specific technologic functions and are divided into 6 groups: preservatives, nutritional additives, colouring agents, flavouring agents, texturizing agents, and miscellaneous agents, with specific expected outcomes in the food. The preservatives group are divided into three smaller functional groups, namely antimicrobials, antioxidants and anti-browning agents. The antioxidant subgroup of additives is used to extend the shelf life of foodstuffs from the oxidative process that could result in the degradation of food such as lipidic peroxidation, changed flavour, colour, nutritional value, and texture, as well as the creation of toxic compounds. (Campos, 2020)

Today bio-compound applications are, in several sectors, constantly growing, there is an increasing awareness in society that the resources on our planet are not infinite so we need to change our perspective towards an anti-waste and re-use approach. Therefore, it is important to consider the reuse of materials and compounds to generate new products that are more sustainable and probably of higher quality or effectiveness. The focus has to be the upcycling<sup>35</sup>, especially in food and beverage sector, where a great amount of waste is generated, but also

<sup>35</sup> Upcycling is the process of transforming by-products, waste materials or discarded objects into new materials or products

represents a relevant source of materials that can be upcycled. This process is widely applied in the cosmetics sector, in fact many of these sources are transformed into beauty products, particularly into natural and organic cosmetics since these often contain food-grade ingredients that have rich properties for the skin.

In an effort to reintroduce materials with valuable active substances for the skin into the manufacturing chain, partnerships between food producers and beauty corporations are becoming more and more popular. Hence a winning collaboration has started spreading bringing some raw material companies specialize in the last few years, in the development of innovative strategies and formulations in the cosmetics by exploiting plant-based ingredients obtained from suitable food waste materials.

The aim is to give a new “life” to some waste that commonly finish into the trash by developing and creating functional, upcycled and organic products and mainly beneficial for our health and body. This is the current work of some cosmetics enterprises.

The discarded materials employed in this mission are several, we could think on peels of citrus fruits, coffee grounds, olive and grape powder, cacao beans, hazelnut, almond and pistachio shells, fruits, nuts extracts and many others. The final products that can be obtained, can cover a wide range including essential oils for the health of our hair, body creams, perfumes, face scrubs and body and face creams.

The quantity of waste that can re-used from the leftovers of food is incredible and even more surprising are the results that consumers can benefit from; we respect the environment by consuming less energy, we recover large quantities of food and we also give a gift to our health and beauty.

#### *4.1.4 The case of the start-up Kymia*

After having discussed the importance of taking seriously sustainability matters and the conversion towards the circular economy, is necessary to make some references to the pistachio of Bronte.

With regard to the employment of the pistachio of Bronte in the circular economy, we know that today, according to what Dario Longhitano affirms, there are companies re-using pistachio shells to fuel furnaces, boilers, stoves and biomass stoves. In addition, some companies are planning to produce cosmetics from pistachio hulls.

A revolution in Bronte in the circular economy has been headed by a young Sicilian (from Bronte) start-up, called Kymia, able to recover scraps from the pistachio of Bronte production.

The functional features of this precious product already mentioned, now are exploited in a deeper way.

The start-up is composed of Arianna Campione the creator and CEO, Anna Cacopardo, the marketing director, Emanuela Giuffrida, the sustainability manager, Matteo Vertemati, the finance responsible and Stefano Paganini, the product designer; all together uniting forces and ideas and the love for the native land and its products, have put in action a simple but innovative idea. From the production, the hull<sup>36</sup> of the pistachio of Bronte instead of being discarded, is recovered and put under hyper-fermentation and the active principle is extracted; in this way the revolution of *PISTACTIVE-F*<sup>37</sup> born and employed in the cosmetic sector creating a superlative face cream which is able to enhance its extra antioxidant properties for a lifting, moisturising effect, anti-ageing power and also, the function of fighting free radicals and strengthens the hydro-lipidic film of the skin and protecting it from external insults. The final result is an exclusive and premium face cream.

In order to know more about this special product and about the way in which this start-up has born and developed, an interview to Anna Cacopardo, the marketing director of the company, has been conducted.

With reference to the creation of the brand, she has started telling the history of the company from the beginning; Arianna Campione, today's dentist and medical-aesthetician, began her career as a hygienist first in northern Italy and then in London. While she was living in London, she realised something was missing and returned to Sicily with the idea of wanting to do something that would enhance Sicilian raw materials.

She did a master's degree at Ferrara in cosmetology (facial aesthetics) with a thesis on pistachio. At that time there was a pistachio harvest in Bronte and she got the idea to start testing the hull. She discovered that the hull had already been tested by the University of Messina in 2016 which published an article affirming that it had a very strong antioxidant power. So, she started experimenting: the hull, the outer fruit attached to the plant, she retrieved it, as it is waste, which degrades in just a few hours, and experimented with it trying to crush it and doing lots of tests.

Then she found a partner company with which performed complex experiments and then

<sup>36</sup> It contains polyphenols and flavonoids with very high antioxidant power, capable of protecting against oxidative stress and thus skin ageing.

<sup>37</sup> This is the active principle of pistachio that has been extracted.

together tested the hull and find a way to bring it into liquid form so that it could be useful to any type of industry, particularly the cosmetics industry.

So, from the discovery of the active ingredient through extraction, it was discovered that it had an extraordinary antioxidant power (42% over the red vine).

From there it was decided to create a start-up: Arianna, the founder, put up the capital, Anna, the cousin and collaborator, put up the skills, and they took their business idea to a start-up competition where they met the other members of the current staff.

**The interview has gone on asking if today the brand is well known and which type of feedback they have received:**

*Kymia today is not just cosmetics: everything stems from the active ingredient and the target audience is mainly over.*

With regard to the marketing aspect, they have started with no social, no advertisements, they acted on creativity; in particular, they have created a very identifiable brand style taking a lot of inspiration from the world of fashion, in fact, they did a fashion film 'aurea' as the product launch campaign conveying the idea of something made for women, unique and inspired by nature.

*Kymia has an elegant, precious scheme. The main target audience is perhaps a businesswoman, because it is not for everyone.*

Today they are very recognised: from social, from TV channels, to the finished product.

*The feedback from people, regarding the product, was received even before the product went on sale. They were born in January 2022, but they already had the product ready before and had distributed it for free to people around them and at events. From there, once people started trying it, the feedback was always only positive in fact, before the product was launched, there were already pre-orders, and then, people never changed their habits again.*

**The following question regarded the sustainability and if they were aiming at a specific environmental impact.**

*We bet on implicit sustainability, it is not a marketing lever that they sponsor for two*

*reasons: there must be no sustainable actions and their target audience does not exactly meet sustainability, but effectiveness. What we could do sustainable: paper packaging.*

At the same time the start-up bets on the circular economy by reducing production wastes.

*I want to continue in the vein of circular economy because it would be a pity to interrupt.*

**The last question has been about the intention of creating or not others products more than the face cream in two formats (50 ml and 15 ml).**

*As a finished product, we only have the anti-ageing cream and do not intend to extend the line at the moment. The company will focus more on the active ingredient recently discovered since it is beneficial to our health: we will sell it to cosmetics companies, supplements, nutraceuticals, and beverages. In this way, our business model is planning to change and they will continue along this line.*

For the Sicilian territory, Kymia represents a turning point, because, in a small reality, creativity, ambition, sustainability and innovation meet all together to give the island the pleasure to shine.

A start-up has born from young and open-minded minds with a love for Sicily and mainly from who believe in the island's potential.

Armed with a spirit of initiative, and thanks to the collaboration of several farmers in the Bronte area, Arianna and Anna went directly to the pistachio fields at harvest time, shelling and selecting the raw material and transforming it into what is now called *Pistactive-f*®, Kymia's patented active ingredient.

The brand can be seen as a true symbol of the circular economy, making it its pivotal point, as Kymia's business endeavours to re-introduce the hull of the Bronte pistachio as a raw material into a new production circuit; the by-product would otherwise be wasted or at worst burnt, releasing toxins into the atmosphere, polluting it.

Although widely used in the food industry, the Bronte pistachio was not initially used in the cosmetics industry, so Kymia's success is also due to this uniqueness in the market, thanks to which today it is possible to recover a waste by-product and transform it to make it usable in other sectors that until now were unimaginable, such as cosmetics.



### *5) Proposal for the creation of a boutique hotel pistachio-characterised.*

In the previous chapters, the tourism of Bronte has been widely discussed mentioning the types of tourism it offers, which tourists attracts and its products. In any case, it is certain that the fame of Bronte is due to the promotion of the pistachio of Bronte, the unquestionable excellence of the territory.

Nonetheless, Bronte's pistachio could be promoted more by proposing something that currently in the area does not exist.

The objective is engaging pistachio lovers much more in the world of pistachio of Bronte, by offering services that today have not been launched.

The president of Pro Loco Bronte, Dario Longhitano, stated that today accommodation facilities with a pistachio theme do not exist; the only attempt has been the creation of the Green Pistachio of Bronte. Hence, in order to boost the pistachio promotion and the knowledge about it, a thematic boutique hotel could represent a turning point for the tourism of Bronte.

Firstly, it is essential to understand how a boutique hotel can be identified according to some characteristics.

A boutique hotel is a medium establishment (approximately 100 rooms) with a unique design, a strong personality, an intimate and exclusive atmosphere and personalised service, with respect to the big and standard hotels.

The feeling that guests should feel is that of finding themselves in an intimate, well-kept home where is possible to connect with the surrounding and doing so, "becoming part of the entire environment". A home that also has common spaces, where travellers can gather to get to know each other and exchange chats and experiences.

The design is a key factor since should include richly decorated rooms, may mix of different elements, the use of fine fabrics, stylish furniture and exclusive amenity sets.

The point that has to stand out is showing personality and singularity with respect to the competition.

Location also makes the difference as it should convey again, the perception of singularity, hence far away from tourist flows and may incorporate in the staff local people able to transmit the attachment for the products of the territory.

The service, which is always customized, is really a guarantee in the world of boutique hotels. When a visitor arrives, the staff recognizes him or her by name and is prepared to take



care of all of their needs. Often, premium, high-quality amenities are provided in the restrooms, and a variety of pillows are available for the beds. If they are present, spas also provide top-notch, personalized services.

If a restaurant is located within a boutique hotel, this will be stylish, distinctive, and exclusive (or bar). In this way, customers have the privilege of providing authentic food, creative beverages, and trendy atmosphere, which makes them a destination for both tourists and residents.

Taking into account the main feature of a boutique hotel, an idea of a boutique hotel with pistachio theme, has been developed by thinking that naturally, the location has to be in Bronte and the name will be “Green Gold Boutique Hotel”.

The structure will be little offering only ten rooms (four triples and six doubles, each with the possibility of adding single beds or for single use and five of these will have the view on the Etna volcano), a choice done to give more the idea of exclusivity and to provide as much as possible a premium service.

The idea is that hotel guests will feel welcomed in a typically Sicilian and Bronte-like atmosphere through a warm welcome from the reception staff, who will be delighted to welcome them into “the house of the pistachio”. Already in the hall, there will be a drizzle of pistachio cream to announce what awaits guests.

The interior design will recall the identity of the Etnean territory: beige and dark green walls with touches of aubergine colour, decorated with various paintings depicting Etna in different seasons, photos of the pistachio plantations, especially of the blossoming and harvesting phases of the fruit, to immerse guests of the facility already with the sight in the climate of Sicily's green gold.

With reference to the services offered, each service will be unique and especially Sicilian, all the features will be handled with detail.

Each room will offer some amenities for the guests of the structure, in particular, on each table will be left a delicious kit of welcoming: a little basket filled with miniature pistachio products: a 50 g spreadable sweet cream with green pistachio of Bronte PDO, a 50 g container of green pesto labelled " Green Pistachio of Bronte PDO.", a 30 ml of pistachio liqueur in a bottle, two Green Pistachio of Bronte PDO nougats and a tiny bag of shelled Green Pistachios of Bronte PDO.

Moreover, in each room, there will be a pistachio recipe book edited by the food blog

*Pistacchissimo*<sup>38</sup> and a brochure with proposals for excursions to participate in on Etna's western slope, in the Nebrodi area, in the Alcantara River Park and in the Simeto Valley.

The bathroom of the rooms will be also a surprise: in each room's bathroom there will be an ambience perfumer with an all-Sicilian character, the particular scent of Sicilian orange blossom<sup>39</sup>. The bath products on offer will be from a fabulous cosmetic line using the active and antioxidant ingredients of the pistachio: a shampoo, a body cream and bath foam; but the treat will be the face cream offered in a 15 ml format. A true pampering for women, it is a cream created by the Sicilian start-up Kymia that uses the hull of the pistachio to extract the active ingredient and obtain a superlative antioxidant and anti-ageing cream for the face; a revolution for the circular economy sector as well.

A rich, typically Etnean breakfast will be offered daily in the lodge: Etnean oranges<sup>40</sup>, Etna apples<sup>41</sup>, Zafferana honey<sup>42</sup>, muesli prepared with Bronte pistachios, pistachio, lemon and almond *granite*<sup>43</sup> accompanied by brioches. Pistachio cakes depending on the day. *Cornetti*<sup>44</sup> with pistachio cream. Of course, for those who do not like the typical sweet breakfast, there will also be savoury proposals including savoury croissants and cured meats.

This hotel will offer in addition, special activities in order to involve visitors in the gastronomic tradition of the territory: the hotel will reserve a room for a unique activity which will see our cook giving lessons of Sicilian cuisine, especially from the Etnean flavour, by previous reservation.

For this hotel sustainability matters, hence among the aims, there will be the one of supporting local producers; it has been decided to offer guests staying at this hotel a voucher with a 20% discount on bookings of activities offered by nearby farmhouses. For instance, they will be able to enjoy through this collaboration, organized tours from local farm around the pistachio plantations, or tasting of local products.

Once that all these ideas have been arranged, was necessary to know the opinion of the consumers, in order to understand if the typology of structure and services offered have would attracted possible visitors of Bronte.

<sup>38</sup> Famous pistachio blog where is possible to find suggestions about places where to eat delicacies with pistachio of Bronte, reviews of different dishes and products pistachio-based but also how to recognise the real flavour of the pistachio of Bronte.

<sup>39</sup> In Sicily called “*zagara*” is one of the representative perfumes of the Island, especially famous for its oranges.

<sup>40</sup> These are oranges particularly sweet and of intense flavour, usually of a vivid, red-orange colour.

<sup>41</sup> These apples have the characteristics of being of small size, but are sweet and crunchy.

<sup>42</sup> This honey is a symbol of the Etnean area; it is not particularly sweet but the flavour is intense

<sup>43</sup> A typical sweet Sicilian preparation; semi-frozen liquid compound prepared from water, sugar, fruit juice, or other ingredients.

<sup>44</sup> Are a part of the typical Italian breakfast, usually combined with a cup of coffee.

Therefore, a questionnaire was created to analyse the viability of the project, seeking information on age, gender, country or region of origin, and level of Sicilian gastronomic culture, and then proceeding into more detail on the idea by proposing questions concerning the services possibly offered.

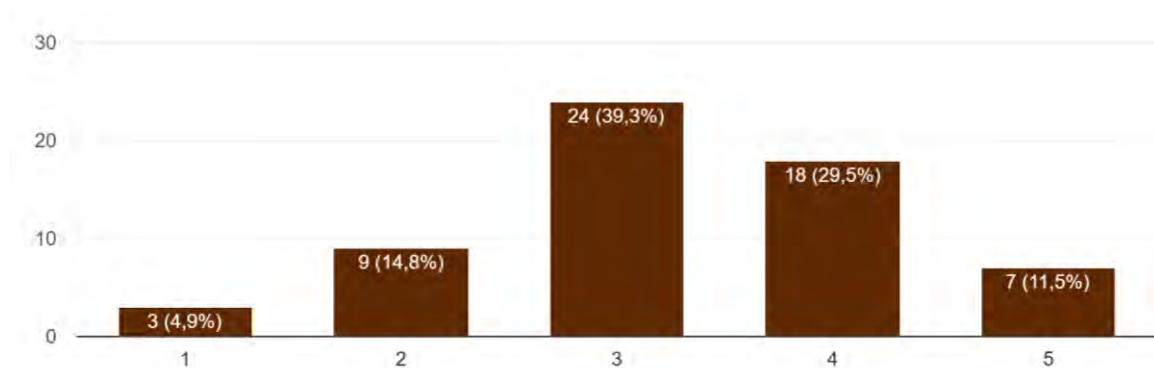
The questionnaire has been created in Italian, English and Spanish to avoid any type of difficulty with languages, but unluckily, this choice has not been so useful.

The total of responses obtained is equal to 74: the majority of the responses received comes from Italian people (64 people), the remaining 10 people comes from different parts of the world: Spain, Austria, Russia, Pakistan, USA, Azerbaijan and Poland.

To the question regarding the interest for regional gastronomic traditions, Italian people has showed almost total interest with respect to foreign people, this is probably due to the fact that Italy has strong ties with the food sector.

Going on deeper, it has been asked the level of knowledge of Sicilian gastronomy from 1(few) to 5(a lot):

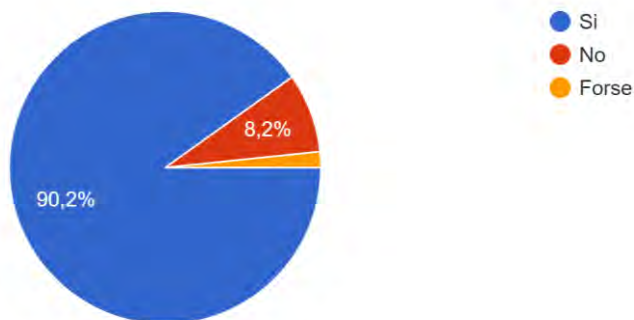
Image 26: graphic showing the levels of knowledge of Sicilian gastronomy



The graphic above reports only the results for Italian people and it can be seen that among people, even Sicilian ones, there is a medium knowledge, while for foreign ones is between “few” and “medium”.

If people sufficiently know about Sicilian gastronomy, should know also that the famous Sicilian pistachio comes from Bronte, but not everyone knows it, in fact, the results show (options: yes, in blue, not in red, maybe in yellow) that there is a little percentage which did not know it:

Image 27: cake graphic showing the percentages about the knowledge of pistachio of Bronte

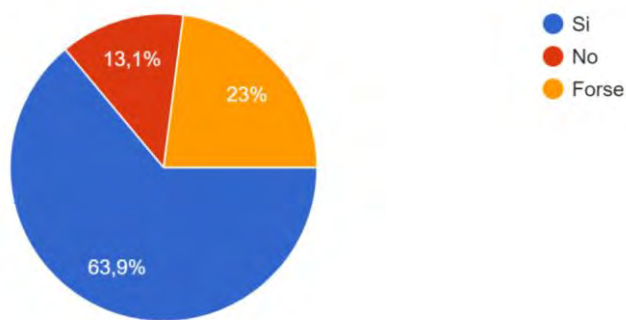


Concerning the other questions, it has to be highlighted that the majority of people would like to visit the city of Bronte and taste its delicacies (around 90 % sure of it).

The questionnaire reaches the main focus by asking respondents if they do know what a boutique hotel is; results show that the majority of them had no idea or is approximate.

The main question has aimed at understanding how much the consumer could have been interested in a boutique hotel pistachio-themed considering a higher price with respect to other types. The results have shown quite interest, although a part is not sure, probably because of the higher price or of do not like the idea of a thematic hotel.

Image 28: cake graphic showing the interest in the idea of a boutique hotel



The subsequent questions regard the ideas about the possible services that would be offered

(consider the ones already mentioned before) and again, the aim is knowing the opinion of consumers.

Each idea has received quite agreement, in fact, the percentage of interest varies between around 70% and 100%.

As last question, it has been asked to respondents if they would like to find or introduce something in particular in the hotel; the majority replied that they did not have an idea and for the percentage that replied “yes” has been given the chance to express their own idea in few words. Below, the most relevant proposals are going to be reported:

- A wellness centre with pistachio, honey, and orange aroma emotional shower.**
- A workshop where guests can experiment with what they have learnt during Sicilian cooking lessons in the hotel.**
- The idea of exploring the organoleptic and chemical characteristics of the product.**
- Tasting some Bronte pistachio delicacies by a beautiful pool.**
- A spa with pistachio creams and products.**
- Aesthetic treatments or some product derived from pistachios used in a dietary way and pistachio infusions.**
- Pistachio-shaped swimming pool with green pistachio colour paved floor.**

Although the feedback is not so many, these few ones make us understand what consumers want and prefer.

In the light of this questionnaire, it can be said that many people are interested in experiencing a themed hotel and even better if the theme is Bronte’s pistachio, a product that today could be considered a luxury product.

Moreover, people are interested in gastronomy and enjoy experiences in this sector, taking into account that food tourism nowadays is considerably developing and attracting a great number of potential tourists. Bronte, can certainly play a lot in this aspect since pistachio is its first economic and tourist resource.

The current negative point, is that the territory lacks someone with a strong entrepreneurial spirit who is keen to bet more on its pistachio developing new marketing strategies, offering new services and spreading correct knowledge of it in order to avoid people bought false pistachio of Bronte.

Lastly, it can be affirmed that according to the perspective of the consumers, the project can have a chance to be developed and implemented since could represent a revolutionary touristic

attraction of the city of the green gold.

## *Conclusions*

The goal of the entire study, as it has previously been indicated, was to address the reality surrounding the pistachio of Bronte by mentioning its production process in order to help customers comprehend the challenges that farmers confront on a daily basis caring for these distinctive goods. Even though Bronte might host lots of visitors throughout the weeks of its festival, this might not be enough. Marketing on the websites of pistachio companies and social networks can undoubtedly aid in the spread of the crop, but there is a problem here: occasionally, marketing tactics are created to spread false information and messages, which increases the risk that product falsification will become routine. For this reason, in the thesis, the importance of reading the labels, and recognizing the characteristics of the aroma and colour of the pistachio has been strongly stressed.

The region around Etna and Bronte has also been thoroughly described, emphasizing its goods, important components of its economy, and visitors who fall in love with it. The pistachio from Bronte, however, is the main focus because its marketing potential has not yet been fully realized. In fact, the results of the questionnaire reveal what was already expected: that not everyone is aware of the differences between pistachio varieties and that the famous Sicilian variety is a product of Bronte city.

Customers still need to be educated about the authenticity of Bronte pistachios; therefore, it is hoped that my work will help, stimulate their curiosity, and ultimately motivate them to plan a trip to Bronte where they may visit the city, pistachio fields, and naturally sample the green gold in all its forms. This might be a big step forward because farmers, producers, and those working to spread the word about this treasure, like Kymia or the Consortium of the Green Pistachio of Bronte, believe it is worthy given the "heroic" labour they put in to growing and gathering pistachios in the lava soil.

By discussing the circular economy model in the food sector and then relating it to the pistachio of Bronte, I have wanted to convey the idea that even the most unexpected products that we consume, can be involved in the circular paradigm. It would only be necessary to reevaluate how we manage our resources, and in the case of the pistachio of Bronte, a super nutritious product, the results of this process are magnificent.

Lastly, the design idea for a boutique hotel with the Bronte-inspired pistachio motif aims to better understand client preferences, level of knowledge, and potential for innovation to amaze them. An initiative that most likely could assist Bronte in increasing tourism.

I hope that people could have the chance soon to enjoy the richness of Bronte.

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