

“ქართული დაფნა/Kartuli Daphna”

Registered in Georgia as a Geographical Indication,

Registration №25, Registration date: 30/08/2022¹

PRODUCT FOR WHICH REGISTRATION OF GEOGRAPHICAL INDICATION IS REQUESTED: Spice (Bay Leaf)

1.8. Other products of Annex I of the Treaty (spices etc.)

NAME AND ADDRESS OF APPLICANT: The Ministry of Environmental Protection and Agriculture of Georgia; Marshal Gelovani Ave. №6, 0159 Tbilisi, Georgia

1. NAME: “ქართული დაფნა/Kartuli Daphna”

2. PRODUCT DESCRIPTION

2.1 PRODUCT TYPE: Spice (Bay Leaf)

2.2 PRODUCT CHARACTERISTICS:

“ქართული დაფნა/Kartuli Daphna” is produced from cultivated noble bay (*Laurus Nobilis* L.) cultivated in geographical area determined with the Article 3 of the Specification.

Noble bay is evergreen, woody-foliage subtropical tree or bush having a height of 10-15 m. It is spread in tropical and subtropical zones of Europe, Asia and South America, tree originates from Mediterranean countries. In Georgia it is mostly spread in subtropical zone, near Black Sea.

In accordance to historical data in Georgia the bay was brought in IV-III centuries BC by Greeks.² Noble bay is valuable subtropical tree, the leaf whereof is very spread and well-known as aromatic spice useful in cooking, confectionery and canning. Bay fruit oil is healing, as well.

¹ The list of Georgian AOs and GIs - https://www.sakpatenti.gov.ge/en/state_registry/

Essential oils content whereof varies between 0.8-3% give the aroma to bay leaf, and it has complex chemical composition. Such compounds therefrom as eugenol (11-12%), methyl-eugenol (9-12%), and cineol (1-12%) are main chemical substances determine bay leaf aroma, and consequently – leaf quality.³

“ქართული დაფნა/Kartuli Daphna” is distinguished from other countries bays with special sophisticated and unique aroma. After drying it acquires grassy and slightly floral scent similar to origanum (*Origanum vulgare* L.) and thymus (*Thymus sp.div*). In accordance to existed data, exclusivity of Georgian bay is a result of joint of such factors as: local agro-climatic conditions, cultivation and treating traditions together with modern processing, and genetic features developed in time. Geographical Indication “ქართული დაფნა/Kartuli Daphna” can be used on product if dry leaf contains essential oils no less than 1.5%. At the same time the leaf shall satisfy the following requirements:

Shape	elongated-lanceolate, oval
Color	green, light green with silvery tint
Size	length – 3 cm and more
Aroma	characteristic for bay leaf, without any other flavor
Taste	bitter, characteristic for bay leaf
Mass particle of moisture	no more than 14%

² Chikvanaia E., Bukia G., Todua G., Dzidzaria O., Essential Cultures Agro Technical Edition "Alashara", Sukhumi, 2017 (p. 186-200).

³ Biondi D., Cianci P., Geraci C., Ruberto G., Piattelli M. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. *Flavour and Fragrance Journal*. 1993; 8:331–337.

The following deviations are allowed for Geographical Indication Georgian bay usage on the consignment:

Broken leaf (plate length no less than 3 cm)	< 5%
Leaf with no less than 3 cm length	< 5%
Yellowish-green leaf	< 10%
Yellow leaf	< 2%
2-3 leaf shoot tops cut at lower leaf base	< 5%

The product having label of "Georgian bay":

- shall not allow foliage be infected with thrips, fleas, barn mites and other pests, as well as black fungus;
- organic admixture (stem, branches, flowers, decaying foliage passing through №3 sieves) shall not exceed 1.5%, and mineral admixture (soil, sand, dust, etc.) – 0.5%, in the consignment;
- small dot foliage with spots (brown, grey) are allowed only if bay leaf consignment meets the other requirements.

3. GEOGRAPHICAL AREA OF PRODUCTION

In Georgia the bay is mainly cultivated in subtropical climate zone of Western Georgia. About half of bay plants come from Samegrelo. The bay is also produced in Guria, Imereti and Adjara. What about of Georgian bay production, in particular, raw materials are coming from: Khobi, Senaki, Zugdidi, Chkhorotsku, Martvili, Tsalenjikha (Samegrelo); Zestaponi, Terjola, Vani, Samtredia, Khoni, Tkibuli, Kharagauli, Chiatura, Sachkhere (Imereti); Lanchkhuti (Guria); Kobuleti, Khelvachauri and Batumi (Adjara) municipalities.

4. “ქართული დაფნა/Kartuli Daphna” PRODUCTION

4.1 OBTAINING OF RAW MATERIALS⁴

Obtaining of “ქართული დაფნა/Kartuli Daphna” raw materials is permitted in specially cultivated plantations and in homestead plots.

4.2 CULTIVATION OF PLANTATIONS

Plantations cultivation for “ქართული დაფნა/Kartuli Daphna” production is allowed as to be grown individually, ie as a bush, or as a wallpaper. The number of seedlings per ha in bush-like plantation should be 6 700, and for wallpaper-like plantation – 11 500–13 400⁴.

4.3. SOIL CARE IN BAY PLANTATION

In normally developed 8-9 year old bay plants, where the plantations are cared the winter farmwork is carried out once per 4 years by applying organic and phosphorus fertilizers into a depth of 10-12 cm. In the rest of plantations, winter farmwork is carried out every year into a depth of 10-12 cm, and the best time for this is during November 15 – March 15.

4.4. SOIL FERTILIZATION IN PLANTATION

Organic fertilizer applying in plantation is carried out once per 4 years together with applying organic and phosphorus fertilizers at winter farmwork or ploughing:

- 1) Fertilizer of excrements – 50 tons/ha;

⁴ Bay Leaf Production Agro Technology - USAID/REAP.

2) Peat compost – 80-100 tons/ha.

Green fertilizers (siderates) are applied once every 2 years, mainly in young plantations, from first half of August to October 15.

Nitrogen fertilizers 50 kg of nitrogen per ha (according to the calculation of the nutrient element) is applied per ha, in 1-3 years old plantation, and 10 kg – in 4-5 year old plantation. Nitrogen per ha in a full bay plantation is applied as follows: 150 kg of nitrogen – in up to 2000-3000 kg green mass plant; 200 kg of nitrogen – in up to 4000-5000 kg green mass plant; 250 kg – in more than 5000 kg green mass plant.

Ammonium sulfate is applied in full dose from February 15 to March 15, in the plantation of all ages. 60% of norm of ammonium nitrate is applied from the first of March to the first of April, and the remaining 40% – in July.

Phosphorus fertilizers Applying of phosphorus (in plantations of any age) takes place from the first of February to the first of April:

- 1) on red grove soils – 150 kg/ha with counting on pure P;
- 2) on humus carbonate and alluvial soils – 100 kg/ha.

Potassium fertilizers Applying of potassium of 200 kg/ha is carried out once in 2 years from February 1 to April 1, during soil ploughing with adding phosphorus.

4.5. DISEASES, PESTS AND WEEDS CONTROL

Pruning of dry branches on plants suffering from Southern rot and phytophthora, excavation and destroying of heavily diseased plants should be carried out in early spring or late autumn. If necessary, chemical measures are periodically executed to control dust, fleas, coconut scale and coccidae: annually, from January 15 to December 15, spray with 0.1% sherp or 1% Bordeaux liquid solution;

Pest herbicide control solution application between rows takes place – twice per year.

Data on fertilizer application, disease, pest and weed control by the entrepreneur shall be recorded in special journal.

4.6. HARVESTING

Essential oils are of maximum amount from the end of vegetation to the beginning of new vegetation in bay leaf, and the plant endures pruning well in this period. For bay this period is from November to the second half of March in Western Georgia. Harvesting in the autumn begins with vegetation interrupting, and continues until the winter bleak days, or first snow. Harvesting is not allowed in snowy, rainy and icy weather, however, pruning is permissible only when the bush is not wet.

Bay harvesting takes place by two ways – annually and once every two years. At pruning periodicity determining the manufacturer must take into account positive and negative factors related to pruning method.

Annual Pruning. At this time full-harvest bay plantation is pruned at a height of 20 cm, in the year of further pruning – at 5-10 cm, higher than the previous year. When pruning in this way, 5-10 cm in height is added to permanent part of the bush every year. In case of annual pruning, the plant does not have a leaf that is more than one-year-old, the quality of such foliage is better (with increasing age the content of essential oil decreases), pests and the conditions for the spread of diseases are eliminated. However, it should be noted that systematic pruning shortens plant life over time.

Pruning Once Every Two Years. Important that usage of this rule strengthens the plant, but it should be taken in account that the growth of first year in second vegetation period due to the emergence of new shoots shading, thus essential oil amount is reduced. Leaf should be removed manually from pruned branches without damage.

4.7. BAY LEAF DELIVERY AND ACCEPTANCE

Bay leaf delivery is conducted in batches. Accordingly, a batch is any quantity of bay leaf that must be received at the same time. Each batch of leaf received by a warehouse or manufacture must undergo control test checking whether bay leaf meets the specifications of GEORGIAN BAY, when it is

delivered at the manufacture, samples should be taken from different layers (bottom, top, middle) of each bay leaf placed in each bag or box. After mixing together the leaf samples should be placed in parchment paper or in polyethylene bag. If there are no more than 10 units in the batch, it is necessary to open all of them, and take a sample from each one. The quantity of sample should not be less than 400 g on average. The foliage and impurities should be selected from the test sample according to the specification, weighed each separately and their percentage relative to the sample determined. The result of analysis should be generalized to whole batch of bay leaf. The appearance and color of bay leaf are determined visually, using a standard pattern. Taste and aroma are defined organoleptically. Leaf humidity is determined by laboratory method.

4.8. BAY LEAF PROCESSING

Drying and storage of bay leaf significantly affect the content of essential oils in it, and other characteristics that determine bay quality. The method of bay drying in the sun was traditionally used in Georgia. As practice has shown, when dried in the sun, the leaf easily spoils and changes color, instead of greenish straw, becomes reddish, which is an indicator of its low quality. It is necessary to use special drying devices for drying “ქართული დაფნა/Kartuli Daphna”. However, as a result of conducted studies, in order to produce products of appropriate quality, the drying parameters are defined as 15 minutes of drying at the temperature of 70-75 °C.

4.9. LEAF SORTING, PACKAGING AND LABELING

Bay leaf sorting shall be manually or by means of modern sort devices. Sorted leaf shall satisfy Georgian bay specification requirements.

Sorted “ქართული დაფნა/Kartuli Daphna” shall be packed in the boxes of 25 kg, in bags of – 15 kg or carton cases of –5kg. Useful container shall meet the requirements set out in the Resolution №317, of June 5, 2018 of the Government of Georgia "Requirements for materials and items intended for contact with food".

“ქართული დაფნა/Kartuli Daphna” transportation is carried out in small batches, each packed unit shall indicate: weight net and gross;

- GI “ქართული დაფნა/Kartuli Daphna”
- weight net and gross;
- packed unit number;
- acceptor name;
- name of the consignment to be sent;
- keeping conditions: dry, cool place.

Bay leaf packing for retail takes from 10 to 25 g. Packing material shall meet the requirements set by the legislation of Georgia – "Requirements for materials and items intended for contact with food".

For public catering establishments it is allowed to pack bay leaf weighting 200-250 g.

Each packed unit shall contain information in accordance with the requirements of the Resolution №301, of July 1, 2016 of the Government of Georgia "On Approval of the Technical Regulation – Provision of Food Information to Consumers". In addition, each packed unit shall additionally indicate:

- GI “ქართული დაფნა/Kartuli Daphna”
- name and address of business operator (manufacturer);
- mass fraction of moisture (%);
- date of usefulness.

5. LINK WITH GEOGRAPHICAL AREA

5.1. AGRO-CLIMATIC CONDITIONS

The main area of bay spread in Georgia is subtropical zone of Black Sea coast, which begins on the slopes of Caucasus Mountains in the North and continues to the border of Turkey in the South. This zone is bordered with the Likha Ridge from the East, and the Black Sea – from the West. The Caucasus Mountains protect this part of land from the invasion of cold masses from the North, while the Black Sea regulates air temperature fluctuations here. At the same time, western air flows

from the Black Sea into the Atlantic Ocean enriching it even more with steam as it crosses the Black Sea, and eventually releasing it in the form of precipitations.

This zone is characterized with a diversity of terrain and microclimate, including precipitations. The highest amount of annual precipitations falls in the South (Adjara) – 2500 mm, while in the North and East – decreases, and ranges between 1200-1800 mm.

The sum of active temperatures during the vegetation period is about 4000-4500°C, in this zone. The maximum air temperature ranges between 37 to 41°C, while the average temperature of the warmest month is 28°C. Air temperatures in winter rarely drop to dangerous for bay crops, and range between 5°C, on average.

The length of Black Sea coast subtropical zone from the South to North is more than 400 km, and the width of the widest part is up to 120 km. Subtropical crops, including bay, are found up to 600 m latitude. It is considered to be the vertical boundary of subtropical zone. However, in some parts of the zone in Imereti like other subtropical crops the bay grows well on 700-800 m above sea level, as well.

It is known that bay needs 2500–3000°C sum of active temperatures for its normal growth and development. Optimum temperature therefor is 20-30°C, critical temperature is 18°C and maximum temperature is 40°C.

Taking into account mentioned above the climate of “ქართული დაფნა/Kartuli Daphna” production fully meets necessary requirements for the development and growth of bay. This is indicated by the two-thousand-year history of the existence of bay in this area and many facts of existence of naturally growing bay trees here.

It is important to note that despite the similarities between climatic conditions of Western Georgia and other major countries producing bay there are significant differences between them. Furthermore, this region of Georgia is characterized by strict climatic conditions for bay growth. According to scientists the strict conditions lead production of more essential oils needed to increase bay tolerability, as well as the presence of large amounts of cineole therein and, consequently, the

distinctive quality of “ქართული დაფნა/Kartuli Daphna”⁵⁶. Essential oil content changes slightly as the high oil content is its genetic sign, at the motion in Georgian conditions (due to environmental conditions). This is also one of distinguishing features of “ქართული დაფნა/Kartuli Daphna”⁷.

The main types of soils in Western Georgia are: red, yellow, subtropic grove soils, etc. – very different from each other in terms of basic agronomic properties and indicators. At the same time, as known, bay is less sensitive to soil type, which allows it to be cultivated practically everywhere in Western Georgia, except in saline and swampy places.

5.2. REPUTATION

“ქართული დაფნა/Kartuli Daphna” has a high reputation since ancient times due to its quality. From the XIX century, 700-800 tons of bay leaf were transported annually to the markets of the Russian Empire from Western Georgia. The demand was even greater during the Soviet period, when practically only the bay produced in Georgia provided the basic needs not only of this huge empire, but also of the countries of Eastern Europe. At present, Georgia lags behind only Turkey in exporting bay to the EU market, while it surpasses other countries.⁸

5.3. HUMAN FACTOR

Important is the fact that in Western Georgia there is a centuries-old experience of bay cultivation, caring and collecting. The positive experience accumulated in bay production was passed from generation to generation, and led to the provision of high quality bay production over the years. Since the 1930-s, significant research work on the development and introduction of progressive technologies for the cultivation of subtropical crops, including bay has begun in Georgia. From this

⁵ Komakhidze V. Bay Cultivation, Ganatleba, Tbilisi, 1969 (pages: 53, 60, 67; 85-87)

⁶ Vorontsov V. Biological Bases for Noble Bay Cultivation. Sochi. (Воронцов В. Биологические основы возделывания Благородного Лавра. Сочи.) 1979

⁷ Shorena Kapanadze, Thesis: Noble Bay (*Laurus nobilis* L.) Agro Technology and Genetically Determined Features Correlation with Its Productivity. Kutaisi State University, 2014 (pages: 68, 70, 92)

⁸ Georgian Bay and Its Export Potential, USAID/REAP

period, the selection and distribution of highly productive forms of laurel also began, which had a positive effect on the further improvement of the quality of laurel produced in Georgia.⁹

6. CONFIRMATION OF ORIGIN

Raw bay leaf imported to the enterprise, and any quantity of finished products exported are recorded in special journal. “ქართული დაფნა/Kartuli Daphna” production control, and subsequent movement is ensured at all stages by marking separate batch, and each retail product, as well as traceability marks.

7. CONTROL

State control over compliance with the specification of “ქართული დაფნა/Kartuli Daphna” production, and the usage of geographical indication “ქართული დაფნა/Kartuli Daphna” is exercised by the National Food Agency, in accordance with the rules established by the Law of Georgia.

⁹ Shorena Kapanadze, Thesis: Noble Bay (*Laurus nobilis* L.) Agro Technology and Genetically Determined Features Correlation with Its Productivity. Kutaisi State University, 2014.