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PRODUCT SPECIFICATION
PDO (X) PGI ( )

1. Responsible Department

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2. Applicant Group

Name: Bingöl İli Arıcılar Birliği (Bingöl Provincial Beekepers Association)
Address: Saray Mah. Tarım İl Müdürlüğü Düzağaç Kampüsü Merkez/BİNGÖL TÜRKİYE
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Bingöl Provincial Beekepers Association has 1706 members composing of the producers / processors of 'Bingöl Balı'. Bingöl Üniversitesi (Bingöl University) is the registrant of the national registration of 'Bingöl Balı'. Therefore, Bingöl University is the cordinator of the application and works together with the Bingöl Provincial Beekepers Association.

3. Name of the product

'Bingöl Balı'

4. Type of Product

Class 1.4. Other products of animal origin (eggs, honey, various dairy products except butter, etc.)

5. Product Description

'Bingöl Balı' is polyfloral honey obtained from the geographical area specified in Section 4. Its color can vary from light amber to dark amber. It is marketed as honeycomb and extracted honey. In production, *Apis mellifera anatoliaca*, *A. mellifera caucasica*, *A. mellifera meda* bee breeds and their hybrids are used.

The pollen characteristics of 'Bingöl Balı' are as follows:

i) It includes at least one of the related taxa; *Astragalus* sp. (milk-veltch), *Centaurea* sp. (centaury), *Hypericum* sp. (St. John's wort), *Trifolium* sp. (clover) and *Xeranthemum* sp. (immortal or annual everlasting),

ii) It's also expected to be compatible with the pollen spectrum listed in Table 2 (the presence of all of listed pollen taxa together is not required).

Table 1: Physicochemical characteristics of 'Bingöl Balı'

Feature	Value
Humidity (% max)	18%
Sucrose (g/100g; max)	3g/100g
Fructose+Glucose (g/100g; min)	65g/100g
Fructose/Glucose	1.00-1.30
Maltose (%max)	4%
Water-insoluble substance (g/100g; max)	0.1g/100g
Free acidity (meq/kg; max)	40 meq/kg
Electrical conductivity (mS/cm; max)	0.8mS/cm
Number of diastases (min)	15
HMF (mg/kg; max)	20mg/kg
$\delta\ ^{13}C_{honey}$	-23 or more negative
$\delta\ ^{13}C_{protein} - \delta\ ^{13}C_{honey}$	-1.0 or more positive
$C_{4\ sugars}$ (max)	7%
Proline (mg/kg; min)	450

Table 2: Melissopalynological characteristics of 'Bingöl Balı'

	Taxon	Family	Pollen Content (Primary: ≥ 45%, Secondary: 16 - 44%, Minor: 3 - 15%, Trace: <3)
1.	*Acanthus* sp.	Acanthaceae	Minor, trace
2.	*Sambucus* sp.	Adoxaceae	Minor, trace
3.	*Allium* sp.	Amaryllidaceae	Minor, trace
4.	*Rhus* sp.	Anacardiaceae	Minor, trace
5.	Apiaceae	Apiaceae	Trace
6.	*Chaerophyllum* sp.	Apiaceae	Trace
7.	*Eryngium campestre*	Apiaceae	Seconder, minor, trace
8.	*Pimpinella* sp.	Apiaceae	Primary, trace
9.	*Achillea* sp.	Asteraceae	Minor, trace
10.	*Anthemis* sp.	Asteraceae	Trace
11.	*Artemisia* sp.	Asteraceae	Seconder, trace
12.	*Carduus* sp.	Asteraceae	Trace
13.	*Cichorium* sp.	Asteraceae	Seconder, minor, trace
14.	*Cirsium* spp.	Asteraceae	Minor, trace
15.	*Cirsium yildizianum*	Asteraceae	Seconder, trace
16.	*Crepis* sp.	Asteraceae	Seconder, minor, trace

17.	*Echinops* sp.	Asteraceae	Minor, trace
18.	*Gundelia* sp.	Asteraceae	Trace
19.	*Helichrysum* sp.	Asteraceae	Primary, seconder, minor, trace
20.	*Leontodon* sp.	Asteraceae	Trace
21.	*Onopordum* sp.	Asteraceae	Trace
22.	*Ptilostemon* sp.	Asteraceae	Trace
23.	*Senecio* sp.	Asteraceae	Trace
24.	*Taraxacum* sp.	Asteraceae	Minor, trace
25.	*Xanthium* sp.	Asteraceae	Trace
26.	*Alkanna* sp.	Boraginaceae	Trace
27.	*Anchusa* sp.	Boraginaceae	Trace
28.	*Cerinthe minor*	Boraginaceae	Trace
29.	*Echium* sp.	Boraginaceae	Minor, trace
30.	*Myosotis* sp.	Boraginaceae	Minor, trace
31.	*Onosma* sp.	Boraginaceae	Trace
32.	*Campanula* sp.	Campanulaceae	Minor, trace
33.	*Campanula* sp.	Campanulaceae	Minor, trace
34.	*Cephalaria* sp.	Caprifoliaceae	Minor, trace
35.	*Dipsacus* sp.	Caprifoliaceae	Trace
36.	*Scabiosa* spp.	Caprifoliaceae	Trace
37.	*Valeriana* sp.	Caprifoliaceae	Trace
38.	*Dianthus* sp.	Caryophyllaceae	Minor
39.	*Saponaria* sp.	Caryophyllaceae	Trace
40.	*Silene* sp.	Caryophyllaceae	Trace
41.	Caryophyllaceae/ Amaranthaceae	Caryophyllaceae/ Amaranthaceae	Seconder, minor, trace
42.	*Chenopodium* sp.	Chenopodiaceae	Minor, trace
43.	*Convolvulus* sp.	Convolvulaceae	Seconder, trace
44.	*Cornus* sp.	Cornaceae	Trace
45.	*Sedum* sp.	Crassulaceae	Minor,
46.	*Eleagnus* sp.	Eleagnaceae	Trace
47.	*Euphorbia* sp.	Euphorbiaceae	Trace
48.	*Coronilla* sp.	Fabaceae	Minor, trace
49.	*Genista* sp.	Fabaceae	Trace
50.	*Hedysarum* sp.	Fabaceae	Minor, trace
51.	*Lathyrus* sp.	Fabaceae	Trace
52.	*Lotus* sp.	Fabaceae	Primary, seconder, minor, trace
53.	*Medicago* sp.	Fabaceae	Minor
54.	*Melilotus* sp.	Fabaceae	Seconder, minor, trace
55.	*Onobrychis* sp.	Fabaceae	Trace
56.	*Robinia pseudoacacia*	Fabaceae	Trace
57.	*Securigera* sp.	Fabaceae	Minor
58.	*Vicia* spp.	Fabaceae	Trace
59.	Geranium sp.	Geraniaceae	Trace
60.	Lamiaceae	Lamiaceae	Minor, trace

61.	*Lamium macrodon*	Lamiaceae	Seconder, minor
62.	*Lamium* sp.	Lamiaceae	Primary, seconder, minor, trace
63.	*Marrubium* sp.	Lamiaceae	Trace
64.	*Mentha* sp.	Lamiaceae	Trace
65.	*Nepeta* sp.	Lamiaceae	Trace
66.	*Origanum* sp.	Lamiaceae	Minor, trace
67.	*Phlomis* sp.	Lamiaceae	Minor, trace
68.	*Salvia* sp.	Lamiaceae	Trace
69.	*Teucrium* sp.	Lamiaceae	Minor, trace
70.	*Thymus* spp.	Lamiaceae	Trace
71.	*Lythrum salicaria*	Lythraceae	Minor, trace
72.	*Alcea* sp.,	Malvaceae	Trace
73.	*Malva* sp.	Malvaceae	Trace
74.	*Tilia* sp.	Malvaceae	Trace
75.	*Morus* sp.	Moraceae	Trace
76.	*Epilobium* sp.	Onagraceae	Trace
77.	*Corydalis* sp.	Papaveraceae	Trace
78.	*Papaver* sp.	Papaveraceae	Trace
79.	*Linaria* sp.	Plantaginaceae	Minor, trace
80.	*Plantago lanceolata*	Plantaginaceae	Primary, seconder, minor, trace
81.	*Acantholimon* sp.	Plumbaginaceae	Trace
82.	*Polygala* sp.	Polygalaceae	Trace
83.	*Polygonum* sp.	Polygonaceae	Trace
84.	*Rheum* sp.	Polygonaceae	Trace
85.	*Rumex* sp.	Polygonaceae	Trace
86.	*Portulaca* sp.	Portulacaceae	Trace
87.	*Lysimachia* sp.	Primulaceae	Trace
88.	*Ranunculus* sp.	Ranunculaceae	Trace
89.	*Paliurus spina christi*	Rhamnaceae	Trace
90.	*Cerasus* sp.	Rosaceae	Trace
91.	*Filipendula* sp.	Rosaceae	Minor, trace
92.	*Fragaria* sp.	Rosaceae	Trace
93.	*Potentilla* sp.	Rosaceae	Seconder, minor, trace
94.	*Prunus* sp.	Rosaceae	Trace
95.	*Pyrus* sp.	Rosaceae	Trace
96.	*Rosa canina*	Rosaceae	Minor, trace
97.	Rosaceae	Rosaceae	Seconder, minor, trace
98.	*Rubus* sp.	Rosaceae	Trace
99.	*Sanguisorba* minor	Rosaceae	Minor, trace
100.	*Galium* sp.	Rubiaceae	Minor, trace
101.	*Citrus* sp.	Rutaceae	Minor, trace
102.	*Salix* sp.	Salicaceae	Minor, trace
103.	*Verbascum* spp.	Scrophulariaceae	Primary, seconder, minor, Trace
104.	*Eremurus* sp.	*Xanthorrhoeaceae*	Trace

6. Definition of the geographical area

The demarcated geographical area covers all the villages and towns belonging to Bingöl province in Eastern Anatolia in Türkiye.

7. Proof of origin

Inspections are carried out by an inspection board consisting of 5 people, under the coordination of the Bingöl University Rectorate and with the participation of an expert person from Bingöl University Rectorate, Bingöl Provincial Directorate of Agriculture and Forestry, Bingöl Chamber of Industry and Commerce, Bingöl Provincial Beekeepers Association and Bingöl Municipality.

Inspections are carried out regularly 3 times a year and whenever needed or in case of complaints. The inspection board meets before each inspection period and makes an inspection plan.

Inspection periods and the criteria are given below.

- Spring Term Inspection (March-May):
- Beekeepers who want to produce 'Bingol Balı' apply to the Bingol University Rectorate in April-May, the number of hives belonging to the producer is determined on site and recorded.
- Determining the suitability of the chosen location for hive placement.
- Compatibility of bee breeds used in production and health control of bees.

- Summer Term Inspection (between June and August):
- The suitability of the health status of the bees that have been diagnosed with the disease during the spring inspection.
- The suitability of the materials used in the production period.
- The beekeepers inform the Bingöl University Rectorate at least 2 weeks before the harvest and the harvest time is determined.
- Compliance with the production method, especially in terms of harvesting, packaging and storage conditions.
- Compliance of the results of the analyses of the samples taken in terms of physicochemical characteristics and, if necessary, melissopalynological characteristics. The costs of the inspection are borne by producer.

- Wintering Period Inspection (between September and March):
- Suitability of wintering conditions are controlled.
- In winterings outside the geographical area; within the scope of the Beekeeping Registration System (AKS) and in coordination with the Bingöl Provincial Directorate of Agriculture and Forestry, the Bingöl Provincial Beekeepers' Association and the Agriculture and Forestry Directorates in the provinces and districts where the

accommodation is made, recording the information regarding the accommodation place and accommodation conditions.

8. Description of the method of obtaining the agricultural product or foodstuff

In the production of 'Bingol Balı', *Apis mellifera anatoliaca, A. mellifera caucasica, A. mellifera meda* breeds and their hybrids are used.

Production stages are given below.

General Preparation Procedures: Flora status of the Bingöl province is monitored in coordination with experts and producers. Beekeeping activities in Bingöl province are mostly carried out in the form of migratory beekeeping.

Beekeepers activities; At the beginning of March, it starts with the care and feeding of the bee colonies during the winter and by controlling the queen bee. This preparation continues until mid-May. Beekeepers can relocate their bees within the geographical area in May, depending on the nectar flow efficiency This change is done within the scope of the Ministry of Agriculture and Forestry Beekeeping Registration System (AKS) and in the coordination of the Bingöl Provincial Directorate of Agriculture and Forestry and the Bingöl Provincial Beekeepers Union, paying attention to the absence of irregular agglomeration during the production period. Changing the location of bees depends more on altitude. When the vegetation decreases in places with an altitude of 1100 m, the bees move to 1900 m and higher, 3-4 km away from the settlements, close to natural water sources, and to areas where nectar and pollen flow is abundant. Generally, the main nectar flow in Bingöl starts in mid-May and continues until the end of August. Beekeepers fight against queen bee control and possible bee diseases and pests by using methods permitted by the Ministry of Agriculture and Forestry in these areas and in bee colonies after honey harvest. The drugs used in this struggle must be licensed and used in accordance with their prospectuses. Colonies are moved to areas with lower altitudes as the air temperature decreases after queen control and possible disease and pest control.

Bees are taken to Hatay-Adana-Mersin provinces after October-November to prepare for the winter and overwinter until the end of February. In this period; within the scope of the Beekeeping Registration System (AKS), actions are taken in coordination with the Bingöl Provincial Directorate of Agriculture and Forestry, the Bingöl Provincial Beekeepers' Association and the Agriculture and Forestry Directorates in the provinces and districts where the accommodation is made. Bee colonies are brought to Bingöl after wintering. In May, the development of the bee population is regulated and it can be taken to high altitude plateaus. hives; It is placed 3-4 km away from settlements, close to water sources and on slightly sloping slopes. In migratory beekeeping, there should be no honey belonging to another region in the beehives and frames brought from the overwintered region to the geographical border. While langstroth hives are generally used in production, production is also made in earthen hives.

Wintering of Bees and Cleaning of the Hives: Propolis accumulated in the hive in autumn is not cleaned as it maintains the heat stability of the hive. Propolis cleaning is done in the spring when the bees come out to nature. Bees are wintered in two ways, indoor and outdoor. Most of the beekeepers prefer to overwinter outside in order to reduce the risk of

entering the winter with weak populations, and they generally winter around Hatay-Adana-Mersin, Diyarbakır and Şanlıurfa.

Wintering in Indoor Areas: Indoor wintering is commonly done at the geographical area. Beekeepers create special closed areas that are well insulated in terms of light, humidity and temperature to overwinter their bees. There should be no air circulation in the wintering area. The wintering rooms are dark, quiet, ventilated, not affected by adobe or heat changes, the water will not freeze and the internal temperature will not exceed 10 ˚C. Depending on the climate, if the room temperature exceeds 10 ˚C, it is cooled by opening the door. The temperature is checked daily.

The bees are usually put into wintering at the beginning of December and the hives are placed on stands 25-30 cm high from the ground, without being too close to the walls. A maximum of 3 rows of beehives are placed on top of each other. hive array; weak colonies in the middle and strong colonies at the bottom. In order to prevent water accumulation on the bottom of the hive due to moisture, the beehives are placed with a 5% inclination towards the front.

Outdoor Wintering: In this method, the hives are left to natural conditions. Strong colonies that are under the snow in winter and can withstand the cold reach the spring.

Care and Feeding of the Bees: During the honey harvest, twice the amount of honey is usually left in the hatching area of the hive so that the bees can feed and spend the winter comfortably. For example, in a bee colony with 5 frames, 10 kg of honey should be left. In addition, autumn feeding is done as a precaution against the possibility of extending the winter season depending on the weather conditions and is usually applied in the evening. Feed; Harvesting sugar syrup or 'Bingol Balı' prepared with a sugar/water ratio of 2/1 or 1/1 t is made with the remaining honey from the honeydew, honey from other places is definitely not used.

During the period from mid-May to the end of August, when the bees start to collect nectar, no support feeding is done. When the bees start collecting pollen and nectar, no drugs or chemicals are applied. During the nectar collection, the water needs of the bees are met by placing clean, drinkable water in a large container in front of the beehives.

Harvesting, Packing and Storage: There is flora at the geographical border where nectar can be obtained uninterruptedly for 20 days, and the nectar flow is best in July. When the bees begin to collect pollen and nectar, beeswax frames are placed in the honeycombs. All or 2/3 of these frames are harvested after they are glazed. The production of 'Bingöl Balı' starts in May and continues until the end of August. Depending on the nectar flow, milking can be done until the end of August and honey is harvested once a year. At harvest time, honey is taken from the honeydew part of the beehive, not from the hatching part. Harvesting is not done during the hot hours of the day. The honeycomb collected is transported to the harvest tent and the glaze layers are scraped off with a glaze comb. After filtering in the milking machine, it is collected in chrome honey containers of 100-200 liters. It is left for 3 days for the large particles to settle and the bubbles to separate. Honeys gaining a homogeneous appearance; It is filled in containers suitable for contact with food, protected from direct sunlight, and stored in clean and dry places with an internal temperature of 4-20˚C, free from odors. Harvested honey is not filtered to change

the pollen content. In the harvest of honeycomb frames taken from the honeydew part of the beehive; It is packaged with packaging materials suitable for contact with food in such a way that its framed state is preserved until analysis, it is protected from direct sunlight and stored in clean and dry places, the internal temperature of which does not exceed 20˚C, free from odors.

9. Link

The application for registration of the designation of origin 'Bingöl Balı' is based solely on the specific quality and characteristics of the product, which result from the natural and human factors present in the geographical area.

Specificity of the geographical area

Bingol province is surrounded by mountains. Volcanic plateaus at different elevations on mountainous areas throughout the province, valleys formed by streams splitting mountainous areas and settling on fault lines, plains and basins formed due to tectonism among mountainous masses constitute the main morphological units. Altitudes and landforms changing over short distances lead to diversity in split topography, climate elements and vegetation.

The annual rainfall and the high number of sunny days in Bingöl make the flora of the geographical area rich. Oaks (*Quercus petraea* subsp. *pinnatiloba* (K.Koch) Menitsky and *Quercus libani* Oliv.) form the dominant cover in forest areas. In steppe areas, milkvetch species *Astragalus muschianus* Kotschy & Boiss. ex Boiss. and *Astragalus gummifer* Labill. is abundant.

Since the average height of the plateaus is 1500-2000 m, the summer period is cool and the flowering period is prolonged. This structure of the geographical area provides the formation of accommodation areas that can be used from June to October in terms of beekeeping activities. It also allows the availability of sheltered local areas for beekeeping.

The absence of heavy industry enterprises in Bingöl has ensured that the soil and water resources remain clean.

Specificity of the product

Bingöl province has an important place for beekeeping activities in terms of its location, natural conditions and production values. Bingöl, which is located in the east of the Anatolian Diagonal, in the Iranian-Turanian flora region and has topographical differences, has a important potential for beekeeping in the region and in the country due to its rich floristic diversity and differences in their flowering periods. For this reason, Bingöl province has a rich flora diversity and shows a high rate of endemism. There are approximately 1700 species, 300 of them are endemic in the flora of Bingöl. In addition, more than 200 plant taxa have been registered as bee plants with melissopalynological analyses. The plant families that come to the fore in these bee plants are Asteraceae (Daisy family), Fabaceae (Legume family) and

Hypericaceae (St. John's wort family). This floral diversity is obviously indicated in the botanical origin of ‘Bingöl Balı’.

In the light of the flora characteristics, the characteristic of ‘Bingöl Balı’ is the richness of his pollen content including the presence of at least one of the related taxa; *Astragalus* sp. (milk-veltch), *Centaurea* sp. (centaury), *Hypericum* sp. (St. John's wort), *Trifolium* sp. (clover) and *Xeranthemum* sp. (immortal or annual everlasting) and some of the pollens indicated in Table 2 of point 3.2.

Human factor

Beekeeping activities, which have been carried out for many years in Bingöl, are an important source of income for the geographical area.

Beekeeping activities are mostly carried out in the form of migratory beekeeping. Beekeepers activities; at the beginning of March, it starts with the care and feeding of the bee colonies during the winter and by controlling the queen bee. This preparation continues until mid-May. Beekeepers can relocate their bees within the geographical area in May, depending on the nectar flow efficiency. Changing the location of bees depends more on height. When the vegetation decreases in places with an altitude of 1100 m, the bees move to 1900 m and higher, 3-4 km away from the settlements, close to natural water sources, and towards areas with abundant nectar and pollen flow.

Flora status of the Bingöl province is monitored in coordination with experts and producers.

10. Name and address of the authorities or bodies verifying compliance with the provision of the specification [Article 11/*R.510*]

Control Authority:

Name: Bingöl Provincial Directorate of Agriculture and Forestry
Address: Saray Mahallesi Bingöl-Muş Karayolu Sağlık Cad. No:26 Düzağaç Mevki BİNGÖL TÜRKİYE
Telephone: +90 426 213 10 25
E-mail: bingol@tarimorman.gov.tr

11. Specific rules concerning labelling of the product the registered name refers to

The name 'Bingöl Balı', one of the following logos of ‘Bingöl Balı’ must be found on the packaging of the product.





12. Proof of protection in the country of origin

‘Bingöl Balı’ is a registered PDO and is under the protection since 16.12.2020 within the scope of the Industrial Property Law No.6769.