

PERCEPTIONS AND ATTITUDES ON ORNAMENTAL FEATURES AN THE USE OF BASIL AND PEPPERMINT

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ABSTRACT

Ocimum basilicum L. (basil) is an herbaceous annual species. For sale, basil is grown as fresh, dried, frozen or in the form of essential oils. In addition to the above-mentioned, basil is also an ornamental species that is mostly used as a potted plant or aromatic species cultivated in private gardens. The stem is herbaceous, erect and 40-60 cm in height. Flowering begins in the middle of the sixth month and lasts about two months. *Mentha x piperita* L. (peppermint) is an ornamental, perennial, medicinal, aromatic and honey-bearing species with a branched stem of 40 to 100 cm in height. It is used fresh, dried, or in the form of essential oils. The peppermint leaves are of dark green in colour, serrated, pointed, opposite positioned and oval in shape. The plant blooms from June to October. The paper also contains results of a survey whose goal was to investigate the perception and attitudes of respondents about the ornamental characteristics, and also the applications of different cultivars and varieties of basil and peppermint. The survey was conducted during the first half of 2022. When it comes to ornamental characteristics, respondents do prefer cultivars with a "more special" appearance of leaves and flowers. The decorative characteristics and application of basil and peppermint plants were regarded with very good marks. Maintaining the species in private gardens is mostly perceived as easy.

Key words: basil, peppermint, perception and attitudes, ornamental characteristics, applications.

INTRODUCTION

Because of the intensive development of the chemical industry in the course of the last century, it was assumed that synthetic substances would displace medicinal plants. However, fortunately, this did not happen, and the sudden increase in demand for such products have increased in Western European countries. Nowadays, there has been more intensive work on breeding medicinal plants and creating new cultivars (Šilješ et al., 1991). For how much importance is given to these plants for scientific and educational purposes in our country, we'll cite the example of the Pharmaceutical Botanical Garden 'Fran Kušan' in Zagreb, which includes approximately 1,500 species, and it is the only specialized garden of medicinal plants existing in this part of Europe (Glavaš, 2019). Aromatic, medicinal and spice species can also be used for decorative purposes in private gardens. These crops can fulfill similar purposes such as vegetable crops (Dorbić, et al., 2020). The results of individual research in the area of the town of Drniš (Dorbić et al., 2015) showed that the respondents, most of them that rated them as very good, perceive the decorative characteristics and possibilities of application of some types of aromatic plants. Aromatic, medicinal and spice herbs have been used for various purposes for a long time. Due to the diverse and specific scents, shapes, structures, colors and leaves of this species, they also provide a multi-sensory experience of the space (Krstonošić et

al., 2021). Today, in addition to the decorative functions of plants, attention is increasingly focused on their implementation in the immediate human environment (Wilson, 1984, according to Krstonošić et al., 2021). For the purpose of garden design, aromatic species can make an integral part of: rocky grounds, decorative beds, groups, solitaires, hedges, etc. (Dorbić et al., 2015). It would be desirable to examine respondents' preferences for certain non-traditionally used decorative species also among the citizens, which is what this paper was based on. For this reason, two aromatic, medicinal and spicy species (basil and peppermint) were chosen. Peppermint is a cross between the two species *M. aquatica* L. and *M. spicata* L. The stem is four-edged formed and up to 80 cm tall. The underground stem emerges from the underground parts. The leaves are saw-toothed, and the leaf blade is ovate-lanceolate and pointed. The flowers are situated in spikes. Peppermint blooms from the month of June to September (Gelenčir & Gelenčir, 1991). Peppermint is also used in modern medicine (leaves, essential oil, dry herb), and in the food and cosmetic industry (Kolak et al., 2001). Peppermint prefers a temperate climate with high rainfall. It needs to be grown in southern locations because the yield of the herb and the amount of essential oil depend on the source of light. It mostly needs water during the flowering phase. It is affiliated with humus-rich soils (e.g., chernozem), with good structure and resolved water-air relations. Due to the presence of pests, it can only be planted in the same place after four years. It is propagated exclusively vegetatively (by underground stem or cuttings), because it is a plant hybrid. It is planted in autumn or spring at a distance between rows of 65 to 75 cm. The most dangerous disease is mint rust (*Puccinia menthae* Pers.) (Šilješ et al., 1991). Peppermint prefers sunny or semi-shady positions a function as a ground cover or soil stabilizer on slopes. In favorable conditions, it spreads quickly, so it needs to be pruned more often. Its dark green color fits nicely into the mosaic with yellow-green tones of lemon balm (*Melissa officinalis*) (Krstonošić et al., 2021). Basil is an annual plant of upright and branched growth, 20-50 cm tall. The leaves are elongated ovate. The flowers are placed in apparent vertebrae. Their color can vary from reddish to pale yellow. They bloom from June to September (Gelenčir and Gelenčir, 1991). It is used in folk and modern medicine, in the food and pharmaceutical industry, gastronomy, etc. It requires plenty of sun during cultivation and moist, humus and warm soil. The soil should have a good structure and a favorable water-air regime. The seeds germinate on the surface. It is grown generatively from seedlings in containers. Outdoors, it is planted in a row at a distance of 50 cm, while the distance between plants in a row is 25 cm. It requires irrigation during cultivation. It is extremely sensitive to the presence of weeds. It is grown in crop rotation and is sensitive to Fusarium wilt (*Fusarium oxysporum* f. sp. *basilici*) (Voća et al., 2020). In decorative private gardens, it can be grown on beds, rocky grounds, pots, etc. Newer cultivars of basil are characterized by their appearance and smell, for instance, fine-leafed basil with a mild aroma or, for example, stronger Italian large-leaved basil, or basil with purple, and pink flowers (Ljubešić, 2010).

The aim of this paper is to investigate the respondents' perceptions and attitudes about the decorative characteristics and application of different varieties and cultivars of basil and peppermint.

MATERIALS AND METHODS

During the writing of this work, as a source of secondary data, various expert and scientific works, publications, etc. were consulted. A survey was used as a source for the collection of primary data. In addition to the survey questionnaire, for better perception, the respondents were also given inspection pictures of all plant species, varieties and cultivars from the survey questionnaire.

The aforementioned survey was conducted during the first half of 2022 on a sample of 50 respondents, 25 men and 25 women, of which 28 % of respondents were from Knin and its surroundings, 18 % from Šibenik and its surroundings, 42 % from Driš and its surroundings,

and 12 % of them from other cities and towns. The age structure of the sample was as follows: 20-30 years (16 % of respondents), 30-40 years (30 %), 40-50 years (22 %), 50-60 years (24 %), 65 and over (8 %). Regarding the level of education, the structure of the sample was as follows: elementary school (2% of respondents), secondary school (66%), college education (4%), and university education (28%) of respondents. For the purpose of statistical analysis, a five-point scale was used (for the purpose of measuring the attitudes about the decorativeness and maintenance of the species in cultivation, and attractiveness of the application), with values ranging from 1 to 5. Data processing was carried out using measures of central tendency, i.e., based on the calculation of the arithmetic mean and standard deviation. Statistical data processing was done using SPSS 16 for the Windows interface.

RESULTS AND DISCUSSION

In Tables 1 and 2 are given the answers related to the respondents' perception and attitudes about different varieties and cultivars of basil and peppermint.

Table 1. Perceptions and attitudes of respondents about the decorative characteristics and application of different varieties and cultivars of basil (According to Jurin, 2022)

| | | B 1 | B 2 | B 3 | B 4 |
|--------------|---|-----------------------|-----------------------|-----------------------|-----------------------|
| Cardinal No. | Questions | Answers | | | |
| 1 | Rate the decorative characteristics of the flower (1- strongly disliked; 3- moderately liked; 5- strongly liked) | A (3,80) Sd (,535) | A (2,42) Sd (,609) | A (3,45) Sd (,611) | A (3,88) Sd (,521) |
| 2 | Rate the leaf decorative characteristics | A (4,14) Sd (,606) | A (2,64) Sd (,563) | A (3,86) Sd (,405) | A (4,68) Sd (,513) |
| 3 | Rate the overall appearance | A (4,28) Sd (,536) | A (3,02) Sd (,428) | A (3,94) Sd (,373) | A (4,72) Sd (,573) |
| 4 | Rate the attractiveness of plant application in private gardens | A (4,36) Sd (,722) | A (3,04) Sd (,402) | A (4,00) Sd (,639) | A (4,64) Sd (,631) |
| 5 | Express your opinion on the difficulty of growing and caring for this species in private gardens (1- extremely difficult; 5-easy) | A (3,90) Sd (,505) | A (3,22) Sd (,507) | A (3,88) Sd (,385) | A (3,92) Sd (,566) |

Legend:

B1 *Ocimum basilicum* ‘Italian Large Leaf’, B2 *Ocimum basilicum* "Blue Spice", B3 *Ocimum basilicum* var. *Cinnamon*, B4 *Ocimum basilicum* "Red ruby".

A-Arithmetic mean, Sd-Standard deviation

The Table 1 shown that the respondents gave very good ratings to the decorative characteristics of the flowers of the basil cultivars (B1 and B4), and good ratings to the cultivars (B2 and B3). With regard to the decorative characteristics of the leaf and the plant’s overall appearance, the best-rated cultivar (B4) was rated excellent, while cultivars (B1 and B3) were rated very good, and cultivar (B2) was rated good. The average grades for the decorative characteristics of the selected cultivars and varieties (flower, leaf and overall appearance) of basil were: B1 (4,07), B2 (2,69), B3 (3,75) and B4 (4,43). The attractiveness of application in the private gardens was evaluated as excellent with the cultivar (B4), and very good with the cultivars (B1 and B3), while cultivar (B2) was graded as good.

The interviewees perceive the difficulty of growth of the aforementioned as mostly light, with the exception of the cultivar (B2), which they evaluated as moderately heavy.

Table 2. Perceptions and attitudes of respondents considering the decorative characteristics and application of different varieties and cultivars of peppermint (According to Jurin, 2022)

| Cardinal no. | Questions | M1 | M2 | M3 | M4 |
|--------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| | | Answers | | | |
| 1 | Rate the decorative characteristics of the flower (1- strongly disliked; 3- moderately liked; 5- strongly liked) | A (2,92) Sd (,528) | A (3,46) Sd (,542) | A (2,52) Sd (,646) | A (4,28) Sd (,607) |
| 2 | Rate the leaf decorative characteristics | A (3,08) Sd (,488) | A (3,90) Sd (,364) | A (2,46) Sd (,579) | A (4,08) Sd (,444) |
| 3 | Rate the overall appearance | A (3,18) Sd (,388) | A (3,94) Sd (,424) | A (2,84) Sd (,509) | A (4,24) Sd (,591) |
| 4 | Rate the attractiveness of application in private gardens | A (3,18) Sd (,596) | A (3,84) Sd (,584) | A (2,84) Sd (,681) | A (4,32) Sd (,621) |
| 5 | Express your opinion on the difficulty of growing and caring of this species in private gardens (1- extremely difficult; 5-easy) | A (3,30) Sd (,544) | A (3,78) Sd (,616) | A (3,14) Sd (,670) | A (4,02) Sd (,319) |

Legend:

M1 *Mentha x piperita*, M2 *Mentha x piperita* "Orange", M3 *Mentha x piperita* "Strawberry", M4 *Mentha x piperita* var. *Citrate* "Grapefruit".

A-Arithmetic mean, Sd -Standard deviation

From Table 2, it can be seen that the respondents assigned a good rating to the decorative characteristics of the peppermint flower, except for the cultivar (M4), which was rated very well. Regarding the decorative characteristics of the leaf, the best-rated cultivars (M2 and M4) were rated very good, the hybrid (M1) was rated good and the cultivar (M3) was rated sufficient. In terms of overall appearance, the best-graded cultivars (M2 and M4) were graded very good, while the hybrid (M1) and cultivar (M3) were graded as good.

The average scores for the decorative characteristics of hybrids, varieties and cultivars (flower, leaves and overall appearance) of peppermint were: M1 (3,06), M2 (3,77), M3 (2,61), M4 (4,20).

For the attractiveness of use in private gardens, cultivars (M2 and M4) were rated very good, while hybrid (M1) and cultivar (M3) were rated as good. With regards to the difficulty of cultivation, the respondents observe the cultivars (M2 and M4) as most easy to cultivate, while the hybrid (M1) is perceived as moderately difficult for cultivation, and the same is perceived for the cultivar (M3).

CONCLUSION

Since the trend of use and preference of ornamental plants is subject to a change, it is necessary to carry out on various market tests. By conducting a survey of perceptions and attitudes about the decorative characteristics and application of different varieties and cultivars of basil and peppermint, that were classified into more classic and special types of varieties and cultivars, we've come to the following results: in terms of decorative characteristics, respondents are more attracted to the cultivars with a more special appearance of leaves and flowers. The decorative characteristics and application of basil and peppermint are rated very well. Growing and caring of species in private gardens is perceived as mostly easy.

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