PERILLA, A NEW SPECIES FOR THE ITALIAN HORTICULTURE

Perilla frutescens (L.) Britt. (fam. Lamiaceae) is an annual plant native to a wide area between the north-east of India and China. The stem can reach heights of 150-200 cm and has opposite leaves, green or red, 4-12 cm long and 2.5-10 cm wide, with petioles 2-7 cm long, more or less pubescent, aromatic. The inflorescence is a terminal raceme with white or pink flowers, 6-20 cm long, with 4-12 cm long and 2.5-10 cm wide, with petals 4-7 mm long, more or less pubescent, aromatic. The differences in the inflorescence occur in the late summer or early autumn. The Fruit is a tetra-achene, with 4 achenes (improperly called seeds) 1.5-2 mm long (weight of 1000 seeds 0.8-1 g), ovoid, reticulated, containing 38-45% oil with a slightly pungent flavor. We know many cultivars, different for color, shape and size of the leaves, and for the composition of the essential oil, which determines the aroma, the final use and the potential toxicity of the plant. Perilla contains large amounts of phenols and carotenoids, therefore it has a great antioxidant capacity. The content of perilla seeds reaches 4% of the amount in spinach, which is considered a major source of this compound for the human diet.

properties

- antimicrobial
- anti-inflammatory
- antioxidant, antitumoral
- antispasmodic
- neuroprotective
- anti-obesity
- antiallergic
- antidepressive
- "chemesthetical" or "trigeminal" receptor

uses

- can use leaves, young plants, inflorescences and seeds of perilla as a food plant (as leafy vegetable, for the oil extracted from seeds, as spice), but also as a cosmetic and medicinal plant. The red-leaf cultivars are also used as fol dyes.

results and conclusions

Perilla shows a good adaptation for the cultivation in the northern areas of Italy. The different cultivars showed high contents in antioxidant compounds. In the aromatic fraction some cultivars contain mainly perillaldehyde, whereas others contain perillaketone. This compound has toxic effects in some animals, but its toxicity has never been proven in humans. Nevertheless, for human nutrition cultures without perillaldehydes are preferred. Perillaketone is very active on the sensory of insects and other invertebrates and it is worthy of consideration in the techniques of pest biological control. We observed that some perilla compounds (perillaldehyde and perillaketone) activate the Transient Receptor Potential (TRPs) ion channels, mainly the pungency receptor responsible for the so-called "chemicalsensitive" or "trigeminal" sensations. This receptor is also activated by other compounds contained in common food plants and spices as mustard, horseradish, garlic, broccoli and other crucifers, cinnamon and many others, which also have a recognized positive role in the prevention of many diseases. Since the cultivars are very different, it is important to evaluate their attitude to various uses.

- We must define the best cultivation techniques, in order to maximize the quantitative and qualitative yield and rationalize the agronomical practices also by an economic and environmental point of view.
- Finally, the perilla is interesting for the cultivation in Italy, thanks to the high antioxidant properties, the content in bioactive compounds and the particular aroma.

activities

- The inflorescences are evaluated as an excellent source of antioxidant compounds, as they prevent neoplastic diseases, free radical damages and pathologies associated with aging or stress. Moreover, the seeds of perilla contain an oil rich in polyunsaturated fatty acid (above all linoleic acid), effective in preventing many important diseases and in the treatment of allergy.