

## **MORPHOLOGICAL, BIOCHEMICAL, AND MOLECULAR CHARACTERIZATION OF GPI “SENISE” PEPPER LANDRACE**

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The landrace “Peperone di Senise” is a long standing typical crop, specifically produced in a limited area along the Serrapotamo river, in the Basilicata region, adjacent to the “Pollino” National Park, and represents a characteristic element of the traditional gastronomy. It is consumed both fresh and dried and is also used to produce a spice (fruit powder) largely used in food preparation. Due to its specific traits, the “Peperone di Senise” landrace has been attributed the PGI mark (EU regulation 163/96). Nowadays it is cultivated over some 50 ha (ca 125 acres) with a yearly production around 900.000 kg (ca 142.000 stones).

In order to support the economic promotion of this landrace, in collaboration with the Basilicata Region extension service (ALSIA), 18 different populations of this landraces were collected from the local farmers production fields. From these populations, after three years of agronomic evaluation, 8 biotypes were selected for superior fruit and plant characters.

These biotypes were cultivated in the experimental field of Policoro, in metapontino’s area, under pollination isolation, and morphological data collected over two years (2004-2005). Biometric characters, derived from the descriptors for *Capsicum* outlined by IPGRI and agreed at the international level, were used to describe the plants and regarded mostly plant habit, flowers characters and fruit morphology, position and colour; also qualitative characters of the fruits were considered, such as low water content or pericarp width.

Biochemical characterization was conducted on mature fruits and regarded soluble solids, capsin, ascorbic acid, capsanthin, cryptoxanthin (the red components of pericarp colour) and  $\beta$ -carotene (the yellow component) content.

Molecular characterization made use of AFLP markers and was performed on 10 individuals per sample using an automated sequencer. Five primer combinations produced useful dominant alleles to be used in similarity and population analyses. In order to compare the subpopulations with the original landrace samples collected, the molecular analyses were carried out on both sets of samples.

The selected subpopulations are now being cultivated under strict isolation in order to increase seed availability.

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