THE GENETIC STRUCTURE OF “ROVEJA DI CIVITA DI CASCIA”, A FIELD PEA LANDRACE (*PISUM SATIVUM SPP. ARVENSE L.*) GROWN IN CENTRAL ITALY


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Field pea (*Pisum sativum spp. arvense, L.*) is an annual legume crop grown for human and animal consumption. It is widely grown for hay, pasture or silage production, either alone or in mixture with cereals. Seeds are rich in protein and minerals content, and for these reasons in Europe it is used as an alternative protein source in the animal feed industry. Furthermore, field pea is suitable in crop rotations providing nitrogen free of charge. In the past this grain legume was cultivated by the Apennine farmer populations and was successfully used as a source of protein for human consumption. A local population (LR) of forage pea, locally called ‘Roveja’ is cultivated in Civita di Cascia (Perugia - Italy). In this region, “Roveja” is grown at altitudes ranging from 600 to 1,200 meters asl. In these environments, it is sown in March and harvested in summer. A considerable loss of field pea landraces and consequential loss of genetic variability in European countries and other areas has been recorded (rif.). The “Roveja” landrace was defined a typical product of Umbria and represents an important genetic resource to be protected according to the Region law n. 25 of September 4, 2001, “Tutela delle risorse genetiche autoctone di interesse agrario’. Article 2 seeks for an official local ‘repertory’ (i.e. inventory) where registering genetic resources at risk of erosion and the criteria for registering them in the repertory. One of the most important criteria for inclusion in the regional repertory is the characterization of genetic materials, by different tools (morpho-physiological traits and molecular markers). The study included 43 lines of Roveja obtained in 2011, and 5 control populations, i.e. a commercial varieties of *P. sativum spp. arvense* (Bluemoon), a commercial variety of *Pisum sativum spp. sativum* (Paladio), and three local populations of Roveja (Castelluccio 3501, 4767 and Cermis mass population). The present study reports the characterization of this landrace based on morphological markers (according to the UPOV recommendations) and 10 simple sequence repeat (SSR) markers. The genetic structure of the landrace, as highlighted through the estimation of allele frequencies within and between different lines, will aid at the monitoring of changes that might occur as a result of selection interventions.

Preliminary morphological and molecular data showed that “Roveja” of Civita di Cascia is a structured population based on a multitude of homozygous lines, well distinguished from other population of field pea grown in the surrounding areas. The 63 morphological and agronomic traits will be used to register this LR in the Umbria Regional Inventory