**CHENOPODIUM QUINOA, A NOVEL CROPS FOR OUR FIELDS? FIRST STEP: GERMPLASM EVALUATION**

TAVIANI P., MENCONI L., PIERONI G., RUBINI A., DAMIANI F.

Institute of Plant Genetics – CNR, Research Division Perugia, Via Madonna Alta 130, Perugia

**novel crops (exotic species), quinoa, genetic diversity, functional foods**

Introduction of exotic crops or recovery and valorisation of germplasm resources are two strategies to diversifificate farmers’ production. In the last years, while the second approach has been widely persecuted, the first has been poorly exploited. Current interest for functional foods and a new market demand, the necessity to explore novel potentialities for our agriculture, also at the light of global climatic changes, urge to identify new crops from other environments suitable for our agricultural system.

Quinoa (*Chenopodium quinoa* Willd subsp. *quinoa*, 2n =4x=36).) is an annual plant originated in South America and cultivated in the Andes. It is a pseudocereal featured by a high quality and high level of protein, absence of gluten, good resistance to abiotic stresses. Preliminary experiments carried out in Europe proved its suitability to be cultivated ex-situ but, to offer marketable product, agronomic and breeding researches are necessary.

 Twelve accessions of quinoa have been collected from scientific institutions, seed companies and local markets. In a spaced plant trial they were analysed for morphological, phenological traits (IPGRI descriptors) and seed production. Molecular diversity accession was tested using the SSR (Simple Sequence Repeat) technique, also with the aim to select accession-specific markers suitable to study the mating system of the species. At the same time three accessions were utilized to investigate the optimal seeding period as well as to analyse, in controlled environment, phenological phases at different photoperiodic regimes.

 Very preliminary observations showed a large variability among and within accessions, so it is easier to select lines suitable for Italian environments as well as for planning breeding experiments. The identification of the optimal combination accession x cultural practices (seeding time, weed control, length of the growing period) is fundamental to introduce such crop in Italy.