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ARTICHOKES FROM APULIA REGION, A SOURCE OF GENETIC VARIATION

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Within the BiodiverSO project (http://biodiversitapuglia.it/) financed by Apulia region, Italy, a number of globe artichoke local varieties were collected in this region and transferred to the field collection of the Institute of Biosciences and Bioresources, CNR, Bari. The globe artichoke [*Cynara cardunculus* var. *scolymus* (L.) Fiori] is a vegetable crop typically produced and consumed in southern Italy and the Mediterranean basin, thanks to its tasty flavour and high antioxidant properties of its flower heads. The globe artichoke is interfertile with the conspecific cultivated leafy cardoon (*C. cardunculus* var. *altilis* DC) and the wild cardoon (*C. cardunculus* var. *sylvestris* Lam.), both belonging to the primary genepool of the artichoke.

The development of genotyping-by-sequencing (GBS) approaches has improved the next-generation technology allowing the sequencing of a fraction of the genome, with low costs and high flexibility. Through GBS, plant genetic diversity can be explored on a genome-wide scale. GBS assay was carried out for a group of *C. cardunculus* samples including artichoke varieties, cultivated cardoons, and wild cardoons. The genetic diversity and structure analysis showed that while for the whole dataset there was a slow LD decay, for the globe artichoke subset there was a rapid LD decay within 100 kb genomic region. Structure analysis on the whole dataset revealed that the best fitting model was built with K=2. Based on this model, genotypes were clustered according to their taxonomic distribution, and the two groups corresponded to artichoke samples on one side, and wild and cultivated cardoons on the other. Structure analysis of the globe artichoke genotypes separated the Catanesi artichokes on one side, and all the other typologies on the other, suggesting a recent and common origin of this genetic material, including "Mola" and "Brindisino" Apulian varieties. Moreover, genetic analyses also evidenced that green Apulian genotypes represent a compact group, distinguishable from the other globe artichokes.

In this work, we provide new evidences that the Apulia region represents a centre of horticultural diversity, where still traditional farming systems can be found and diversified crops are cultivated.