Project title: Multiple genetic approach to identify Italian rocket resilient to climate change

Acronym Rucol-ITA

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Description:

Leafy vegetables have an important role in the human diet. In the last two decades, companies have started to commercialise a huge number of ready-to-eat salads which are made of a variety of baby-leaf vegetables including rocket, valerian, lettuce and spinach. Rocket is the most common leaf used in already prepared salads due to its taste and nutraceutical feature. Italy is the main producer in Europe and, “Piana del Sele” (SA; Campania) alone produces almost 90% of the consumed rocket. Climate change is strongly threatening rocket cultivation, the increased ambient temperature causes premature flowering, which leads to loss in leaf production, and increase susceptibility to pathogens.

Aims:

The aim of the project is to identify rocket genotypes with higher leaves production, more resistant to pathogens and more tolerant to salt implementing multiple genetic approaches. Genetic improvement of rocket represents a great strategy to obtain varieties more suitable to the Italian local cultivation climate since the efforts to generate varieties more suitable to the local growing environment was poor so far.

Expected results:

A chemically mutagenized population will be screened implementing forward and reverse genetic approaches and plants with improve disease resistance, improve leaf yield or salt tolerance will be selected. A chemical mutagenesis approach has been chosen to generate genetic variability because plants caring mutations are usable in conventional and organic agriculture practices. Moreover, a protocol for targeted gene editing will be developed for future application of gene editing approach.

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