

## **DEVELOPMENT OF NEW VARIETIES OF CAMELINA SATIVA: CHEMICAL ANALYSIS AND GENETIC CHARACTERIZATION THROUGH GBS**

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*Camelina sativa* (*Camelina sativa* L. Crantz) (gold-of-pleasure, false flax) is an herbaceous winter annual or annual crop belonging to the family Brassicaceae (Cruciferae). *Camelina* is a recent interesting oilseed crop.

The erect plants reach a height between 30 and 90 cm. The leaves are lobed both in the rosette and along the single stem. The flowers are small, yellow, in terminal clusters without bracts. The pear-shaped siliques contain seeds 7 to 9 mm long, not susceptible to deiscence.

It is an hexaploid plant ( $2n = 40$ , genome size ~ 782 Mb) with a fast low-input growing, a short life cycle (85–100 days), a high oil content (up to 40%), with high level of unsaturated fatty acids (30-40% alpha linolenic acid fraction, 15-25% acid fraction linoleic, 15% oleic acid fraction and about 15% eicosenoic acid). A limiting factor regarding the utilization of *Camelina sativa* is the presence of high level of glucosinolates in the seeds. Glucosinolates are sulfur-containing glucosides, mainly present in Brassicaceae, involved in plant defense.

In recent years, cultivation has resumed in various areas of Europe as it has a low environmental impact, adapts to low temperatures and semi-arid climates, grows well in marginal areas. *Camelina sativa* is suitable for helping the development of poorer areas and countries and does not create pollution or over-exploitation of the land.

The aim of this work is to develop by two different breeding programs (“pure line method” and “bulk method”) new spring varieties of *Camelina sativa* with high yields. The selection of the best lines developed in the breeding programs have been supported by MAS (Marker Assisted Selection). To characterize/compare the new putative developed varieties we performed bromatological and GBS analyses (Genotyping by Sequencing).