

## **Trial cultivation of *Crambe abyssinica* in the open field for biolubricant production.**

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Under the TISEN project (Sustainable Innovative Techniques for the production and processing of Energy and non-food crops) a process was experimented for the production and industrial utilization of *Crambe abyssinica* oil. The experiment had the following specific aims: i) to obtain adequate quantities of grain for oil extraction; ii) obtain products (raw materials, semiprocessed materials, oil, extraction meal for analysis and characterisation); iii) assess the suitability of the crop for the Ravenna area; iv) make economic assessments of the agronomic stage (cultivation cost).

The crop was grown in 2002 at Ravenna, over a surface area of 6 hectares. Oil extraction was performed using an “INSTA-PRO INTERNATIONAL” press (Mod. 1500). The following factors were examined: crop yield, physico-chemical properties of the oil, nutritional value of the residual meal and, finally, cultivation costs. From a technological point of view, the results obtained confirmed the positive physico-chemical characteristics of *Crambe abyssinica* oil, such as: high content of erucic acid (53.7%), high viscosity (50.6 and 10.6 mm<sup>2</sup>/s, at 40 and at 100°C), high smoke point (218°C). From an agronomical point of view, however, the results were poor (1.43 t ha<sup>-1</sup> of grain, with 28.6% oil), mainly due to the unfavourable weather conditions which caused a reduction in the growing cycle and, in particular, the bloom-ripening stage. The cultivation cost per surface unit (1043.79 € ha<sup>-1</sup>) was similar to that of other oil-producing crops, whereas the product unit cost was high (695.86 € t<sup>-1</sup>) due to the poor yield.

*Key words:* *Crambe abyssinica*, environmental adaptability, productivity, oil properties, meal characteristics, cultivation cost.