

**A comparative study of chemical and biological properties of some selected spring Canola (*Brassica napus*) varieties, F<sub>1</sub> progeny and Mustard (*Brassica juncea*), with a view of introducing a value added trait – high content of favourable fatty acids, to Mustard**

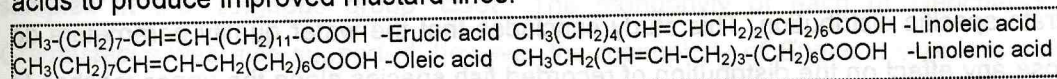
M V Gamlathge<sup>1</sup>, S R Weerakoon<sup>2\*</sup> and K M S Wimalasiri<sup>3</sup>

<sup>1&2</sup>The Open University, Department of Botany, P O Box 21, Nawala

<sup>3</sup>The University of Peradeniya, Department of Food Science and Technology, Peradeniya

Mustard (*Brassica juncea*) is grown in Sri Lanka and seeds are used as a spice. Mustard seed oil is mainly used for cooking. However, mustard oil has a high amount of erucic acid, which is nutritionally undesirable for heart muscles. But, in commercially grown canola (*Brassica napus*) varieties, erucic acid content is considerably low. Thus, there is a need of substituting mustard containing unfavourable fatty acids with new lines produced by hybridising mustard with high quality canola varieties.

Analysis of fatty acid was done by gas chromatography using methyl ester derivatives of fatty acids. These provided valuable information on the nutritional quality of food and the identification of edible oils. The fatty acid profiles indicated that erucic acid content in spring canola varieties, Narendra, Monty, Oscar, Hyola, Karoo and Outback grown in Western Australia are very low (0.2-0.6%) compared to that of *B. juncea* (46%). However, nutritionally favourable oleic acid content was very low in mustard (8%) compared to that of canola varieties (38-57%). The F<sub>1</sub> hybrids between *B. napus* and *B. juncea* showed a moderate amount of erucic acid content (18-21%) compared to that of *B. juncea* (46%) and slightly low content of oleic acid (33-41%) than that of *B. napus* (38-57%) varieties. This indicated the possibility of producing hybrid varieties with a value added character like a high content of oleic acid and a low content of erucic acid. It was reported that hybridisation between *B. napus* spring varieties and *B. juncea* is quite satisfactory (35% - 56% crossability) and indicated a good possibility of transferring a trait like favourable fatty acids to produce improved mustard lines.



The anti-bacterial test of different *B. napus* varieties and *B. juncea* indicated that Narendra, Oscar, Outback and Karoo had activity against *Streptococcus*, *E. coli*, *Staphylococcus*, and *Pseudomonas*. However, *B. juncea* did not show any anti-bacterial properties. The TLC – Bioassay method used for anti-fungal activity indicated that for *Cladosporium*, *Aspergillus* and *Mucor*, Narendra, Oscar, Outback and Karoo had anti-fungal activity whereas mustard had no anti-fungal activity. This suggests that if the traits ant-fungal and anti-bacterial properties of canola could be transferred to mustard, it would be possible to breed fungal and bacterial resistant mustard varieties.

\* [srwee@ou.ac.lk](mailto:srwee@ou.ac.lk)