

A SURVEY OF SINAPINE AND RELATED CHOLINE ESTERS IN SEEDS OF *BRASSICA*
NAPUS AND THOSE OF ITS GENITORS

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Sinapine has been considered as an undesirable compound in rapeseed meal especially for poultry (1) and thus it will be of interest to select new varieties producing seeds with a lowered content of sinapine. The results presented herein were obtained in a study undertaken to determine the variability of sinapine content in rapeseed and its genitors. Sinapine and other choline esters have been characterized either in crude extracts or in purified fractions obtained from the seeds of *B. napus* using both electrophoretic and spectroscopic methods. It was shown that natural abundance ^{13}C -NMR allowed an easy detection of sinapine and its discrimination among other choline esters. It was also demonstrated that the "so-called sinapine", according to the Clandinin procedure (2), used as a reference for expressing sinapine contents is a mixture of choline esters. As a consequence, sinapine and structurally related choline esters were spectrophotometrically quantified all together with usual UV methods. As a suitable method for a specific determination of sinapine is still lacking, we have made a preliminary survey of total choline esters content in seeds from a range of 161 *Brassica* cultivars. In order to apprehend properly the variability of this trait, techniques used for grinding seeds, extracting choline esters and isolating them have been thoroughly standardized. It was found that the total choline esters content of the seeds fluctuated between 0.58 % and 1.89 % of total dry matter. At the intraspecific level significant changes occur between either sub-species or types of varieties. Thus considering *B. oleracea* which exhibited the highest values, the sub-species *acephala* and *botrytis* have quite different levels. Furthermore among *B. campestris* varieties which have the lowest contents, the sub-species *trilocularis* is remarkable by its especially very low values. In contrast, for the varieties of *B. napus* there is no significant differences between the sub-species *rapifera* and *oleifera*. Quite similar features were found comparing winter and spring varieties, and oleaginous and forage varieties. Comparison of the results obtained for the seeds of *B. napus*, *B. campestris* and *B. oleracea* clearly indicated that the hybrid has an intermediary potential for the storage of sinapine and other choline esters.

(1) HOBSON-FROHOCK et al., Br. Poult. Sci., 18 : 539-541, 1977.

(2) CLANDININ D.R., Poult. Sci., 40 : 484-487, 1961.