

Canolol Formation during Fluidized Bed Treatment of Rapeseed Meal

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In comparison to other important oilseeds rapeseed contains high amounts of phenolic compounds, which mostly remain within the cake or the meal during oilseed processing due to their polar properties.

The main fraction of these phenolics is sinapic acid esterified with choline (3,5-dimethoxy-4-hydroxycinnamic acid), the so called sinapine. Additionally, about 15 % free phenolic compounds can be found, with sinapic acid as main component.

It has been shown, that during heating of rapeseed 2,6-dimethoxy-4-vinylphenol (vinylsyringol), so called canolol, is formed by decarboxylation of sinapic acid. Acc. to different authors canolol exhibits high antioxidative activity as well as antimutagen and anticarcinogen properties, which make it interesting as food or cosmetic additive. After separation of the carboxyl group canolol is more unpolar leading to a better solubility in oil. In this way rapeseed oils with high canolol content can be produced from roasted seeds.

A basically other option to make canolol useful consists in thermal treatment of the meal in order to decarboxylate the containing sinapic acid followed by extraction of the formed canolol. The advantage is that the established oilmill process has not to be changed, whereas the meal can be valorized.

The paper will describe experimental investigations on thermal treatment of rapeseed meal in a small pilot scale fluidized bed equipment. The measured dependencies of canolol content on the used meal as well as on the processing parameters will be shown.