

# FACTORS AFFECTING THE NUTRIENT COMPOSITION OF SUNFLOWER MEAL

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## ABSTRACT

Sunflower (*Helianthus annus L.*) is a high oil-yielding seed crop cultivated worldwide that adapts very well to a wide range of climates. Sunflower seed meal is a by-product of the oil extraction of sunflowers and it is produced in large quantities. Sunflower meal (SFM) is mainly used as feed source that offer cheap, eco-friendly substrates for the animal nutrition. The meal is initially used as a protein complement in ruminant diets, and also monogastric animal rations in appropriate amounts. The chemical compositions of SFM have been extensively evaluated and it has been found that the chemical composition of SFM is varied greatly. The mean moisture and dry matter contents of SFM were reported as 9.0 % and 91.0 %, respectively. SFM is composed basically on lignocellulosic fiber and proteins. The content of crude protein in SFM ranges from 23.0 to 42.0 % and the crude fiber level varies between 13.0 % and 35.0 % depending on the extent of dehulling. The concentration of ether extracts in SFM varies from 0.50 to 13.0 % depending on the extraction process. The large variation of ether extract level was mainly related to the different extraction process. The differences in production methods, such as heating temperature, pressure and time during the process might lead to the changes in ether extract values. The different production techniques also caused the variation of the other chemical components of SFM. The content of phenolic compounds such as chlorogenic acid and caffeic acid in SFM ranges from 3 to 4 %. The average ash composition of sunflower meal was reported to be 6.0 %. In conclusion, the processing techniques is one of the major factor affects the nutritional composition of SBM. Processing techniques are initially effective in the levels of ether extracts, the crude fiber levels and other nutrients therefrom. The variations of nutrient composition in SFM might result from dehulling process too. SFM composition can vary somewhat according to extrinsic factors such as genetic, seed varieties, climate and soil conditions. In addition, the chemical concentration of SFM is also affected in each plant and collecting typical samples in person and the analysis method used.

**Key Words :** Crude protein, crude fiber, nutrient composition, processing techniques, sunflower meal