

Comparative Studies on Egyptian and Libyan Roselle Seeds as a Source of Lipid and Protein

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Abstract:

Proceeding from the fact that the seeds of Roselle plant are full of nutritional constituents, however in Egypt and Libya, they are often discarded as a by-product, this study aims to evaluate the nutritional composition of Roselle seeds grown in Egypt and Libya as a source of oil and protein besides making a comparison between whole chemical composition of Roselle seeds grown in both countries. Ground of whole Egyptian and Libyan Roselle seeds powder contained high amount of protein ($31.02\% \pm 0.93\%$ and $28.67\% \pm 0.45\%$), crude fat ($21.6\% \pm 0.66\%$ and $16.94\% \pm 0.86\%$) and total ash ($6.89\% \pm 0.11\%$ and $5.60\% \pm 0.10\%$), respectively. However, Egyptian seeds have moisture content, protein, crude fat and total ash higher than Libyan seeds. Crude oil from Egyptian seeds had high refractive index and iodine value in comparison with crude oil from Libyan seeds. There were no remarkable differences between both seeds in acidity percent, unsaponifiable matters percent and saponification value. Linoleic, oleic and palmitic acids were the major fatty acid constituents in Egyptian Roselle seeds. Meanwhile linolenic, linoleic, oleic, stearic, palmitoleic and palmitic acids were the major fatty acid constituents in Libyan Roselle seeds. Crude oil from Egyptian seeds had higher percent of unsaturated fatty acids than crude oil from Libyan seeds. Unsaponifiable matters constituents for extracted oil from Egyptian seeds were free from n-pentacosane (C25) and rich in n-hexacosane (C26). Oil from both seeds had the same content of Beta sitosterol and stigma-sterol. Both seeds were rich in glutamic acid, aspartic acid, arginine and leucine. Libyan seeds were rich in essential amino acids in comparison with Egyptian seeds. Finally nutritional comparison of Roselle seeds variation depends on the variety, location and environmental conditions during cultivation. Roselle seeds are a good source for extraction of oil and protein. Protein from Roselle seeds could be used as a supplement material for poor food in lysine.

