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Characterization and chemical composition of fatty acids content of watermelon and muskmelon cultivars in Saudi Arabia using gas chromatography/mass spectroscopy

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Abstract

Background: The growth in the production of biodiesel, which is principally fatty acid methyl esters (FAME), has been phenomenal in the last ten years because of the general desire to cut down on the release of greenhouse gases into the atmosphere, and also as a result of the increasing cost of fossil fuels. Objective: Establish whether there is any relationship between two different species (watermelon and muskmelon) within the same family (Cucurbitaceae) on fatty acid compositions and enumerate the different fatty acids in the two species. Materials and Methods: Extraction of fatty acids from the two species and preparation the extract to gas chromatography/mass spectroscopy analysis to determine the fatty acids compositions qualitatively and quantitatively. Results: The analyzed plants (watermelon and muskmelon) contain five saturated fatty acids; tetradecanoic acid, pentadecanoic acid, hexadecanoic acid, heptadecanoic acid and octadecanoic acid with different concentrations, while muskmelon contains an extra saturated fatty acid named eicosanoic acid. The watermelon plant contains five unsaturated fatty acids while muskmelon contains three only, the two plants share in two unsaturated fatty acids named 9-hexadecenoic acid and 9-octadecenoic acid, the muskmelon plant contains higher amounts of these two acids (2.04% and 10.12%, respectively) over watermelon plant (0.88% and 0.25%, respectively). Conclusion: The chemical analysis of watermelon and muskmelon revealed that they are similar in saturated fatty acids but differ in unsaturated fatty acids which may be a criterion of differentiation between the two plants.

Keywords

Author Keywords: [Citrullus lanatus](#); [Cucumis melo](#); [fatty acids](#); [gas chromatography/mass spectroscopy](#)

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