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FATTY ACIDS OF SUNFLOWER OIL IN RELATION TO THE PREVAILING AIR TEMPERATURE AND SOLAR RADIATION ENERGY DURING SEED FILLING PERIOD

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ABSTRACT

Sowing date had marked effect on seed oil content and oleic and linoleic fatty acids content of the two sunflower varieties (Giza 102 and Sakha 53). Sowing during the period from mid - May to mid June produced highest values of seed oil content and oleic fatty acid percentage. While it showed the lowest value of linoleic fatty acid percentage. Variation in seed oil content, oleic and linoleic acids was more related to the actual sunshine hours (ASSH) and solar radiation energy (SRE) for Sakha 53 variety in addition to maximum temperature ($T_{max.}$) for oil content in Giza 102 variety. Coefficient of determination (R^2) values is > 0.90 for seed oil content and > 0.95 for oleic and linoleic fatty acids in relation to ASSH, SRE in both seasons and for both varieties. Thus, the linear regression is fit to describe the relationship between each of ASSH and SRE independent factors and each of seed oil content, oleic and linoleic fatty acids. Growing degree days (GDD) and maximum temperature and average temperature followed the ASSH and SRE seed oil content and oleic fatty acid based on their R^2 value.

Key words: climate parameters, fatty acids, sunflower, sowing date.