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Quality oil of sunflower (flame) variety affected by organic, mineral nitrogen and row spacing

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This study was concluded at experimental field – College of Agriculture/University of Salahaddin-Erbil, during spring season (2016) in order to growth, yield, yield components and quality oil of sunflower (flame) variety affected by organic, mineral nitrogen and row spacing. The experiment carried out in accordance with using split plot design within a complete random block design (RCBD) with three replicates, as was the use of independent comparisons and trend analysis to test the traits in addition to the polynomial Duncan test. Where the distances agriculture workers occupied the main plots (50 and 70 cm) between the lines, while the included sub plots nitrogen fertilization factor which consisted of seven levels, a three organic fertilizer levels (10, 15 and 20 ton/ha) and three mineral fertilizer levels (60, 90 and 120 kg N/ha) in addition to the treatment comparison. The results can be summarized as follows: Significant effect of interaction between row spacing and nitrogen fertilizer occurred in same traits, the highest of oleic acid reached (44.07%) was obtained from the interaction between the distance (50 cm) and rate of (20 ton/ha) organic fertilizer; the factorial treatment cultured in (70 cm) row spacing and nitrogen control treatment (0 kg N/ha) gave lowest palmitic acid (6.62%); the highest oil content (45.0%) and lowest stearic acid (3.03%) were obtained from the interaction between (50 cm) and nitrogen control treatment (0 kg N/ha); the interaction effect occurred between row spacing (70 cm) and rate of (90 kg N/ha) mineral fertilizer gave the highest linoleic acid (48.47%); when orthogonal contrast conducting, fertilizer treatment excelled on non-fertilized treatment in all traits except oil content and oleic acid. Organic fertilizer excelled on mineral fertilizer in some traits like (oleic acid), but mineral fertilizer excelled in these traits (linoleic acid); the relationship between organic manure levels and traits: Palmitic and oleic acid - quadratic as well as the relationship between mineral fertilizer levels and trait linoleic acid- quadratic.

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Evaluating the bioactive potential and functional properties of eggshell membrane protein hydrolysates

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The aim of this study was to hydrolyze the eggshell membrane proteins using ultrasonic pretreatment followed by enzyme hydrolysis under optimum conditions. Gel electrophoresis (SDS-PAGE) results demonstrated small molecular weight bands ranging from 2 kDa to 25 kDa suggesting the presence of peptides in the sample and amino acid analysis of the hydrolysates revealed them to be rich in hydrophobic amino acids (23.34%). The resulting hydrolysates were then analyzed for their bioactive and functional properties. From the results obtained, it was observed that the protein hydrolysates demonstrated good solubility, foaming and emulsifying properties. Additionally, they were also found to exhibit remarkable bioactive properties such as reducing power (0.71), DPPH (2, 2- diphenyl-1-picrylhydrazyl) radical scavenging activity (65.91%) and superoxide radical scavenging activity (87.43%) which were found to increase with the increasing protein concentration. The protein hydrolysates also demonstrated angiotensin converting enzyme-I (ACE-I) inhibitory activity with a value of 45.65% and were also found effective in inhibiting certain foodborne pathogens. Results of this study indicated that the eggshell membrane protein hydrolysates have potential applications as functional and nutritional food ingredients.

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