

Evaluation of Fatty Acid Pattern, Sterols and Tocopherols Content of Oil Extracted from Different Varieties of improved Oilseed

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ABSTRACT

Eleven samples of improved oilseed named Amica, Goliath, Swhot Shot, Wild Cat, Heros, Sarigol, Cracker Jack, RGS303, Zarfam, Hyola407 and Comet were provided from Karaj Institute of Seed Improvement. These varieties are meant to be triple zero meaning that the amount of their erucic acid, glucosinolate and fiber was minimized through genetic improvement. The extracted oils were subjected to a series of chemical tests consisting of the determination of fatty acids composition, identification and quantification of fractions present in the nonsaponifiable matter. The results indicated that β -sitosterol (53.2%), γ -tocopherol (60.26%) and oleic acid (63.98%) were the predominant sterol, tocopherol and fatty acid present in the oils examined respectively and erucic acid existed only in minute concentration (0.12%). The results showed that the differences between eleven varieties investigated were significant. The best variety in term of oil percent was Wild Cat (47.7%) while RGS303 variety had the highest content of tocopherols (201.12 ppm). Considering the shortage of edible oil in some developing countries and the amount being imported, it is important to select the proper source which is suitable for cultivation and is compatible to Iranian agricultural situation. Oilseed plant and its compatibility to different weather condition of Iran makes it a prime choice for cultivation to produce oil seed which might be employed for oil production. Examination of the varieties of seeds, and the oil extracted from them indicated that the oils were of edible quality with trace of erucic acid. The high concentration of linolenic acid (7-8%) makes the oil unsuitable for frying practices due to oxidation and polymerization reactions, however the oil might be employed for cooking, salad dressing or be hydrogenated if required.