UTILIZATION OF SOME UNCONVENTIONAL SOURCES AS FOOD ADDITIVES

By

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B. Sc. Agric. Sc. (Food Technology), Cairo University, 2010

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ABSTRACT

Mohamed Salah Mohamed Ghazal: Utilization of some Unconventional Sources as Food Additives. Unpublished M.Sc. Thesis, Department of Food Science, Faculty of Agriculture, Ain Shams University, 2016.

The objective of current study was designed to evaluate unconventional sources of seeds such as pomegranate, garden cress and flax seeds to utilize it as food additives for improving the nutritional value and healthy properties of food products. Proximate composition, functional properties, phytochemical compounds, rheological characteristics and fatty acid profile were assayed. Seeds characterized by its higher content of proteins, ether extract, phytochemical compounds and minerals. Punicic acid (omega – 5)was the major fatty acid being 84 % in pomegranate seed oil, while the linolenic acid ω – 3 was the highest acid in garden cress seed oil.

Higher emulsion capacity and stability as well as foaming were observed for the investigated seeds amount the different pH values. Obtained data showed higher foaming stability for pomegranate and garden seed than flaxseed. On the other hand, these seeds characterized by its higher water and oil absorption.

Addition of seeds powder improved the water holding capacity and cooking quality of beef burger. Shrinkage and cooking loss decreased with increasing the addition of the investigated seeds powders. However, sensory properties of the fortified prepared beef burger samples were improved up to 2 % of pomegranate or garden seeds powder.

On the other hand, blending pomegranate or garden cress seed oils with sunflower oil improved the omega fatty acids profile. Also, blending

of sunflower oil with garden seed oil up to 50 % decreased the erucic fatty acid in the blended oil less than 5 % as reported by WHO recommendations.

Addition of pomegranate or flax seeds powder in wheat dough at ratios up to 10 %, improved the rheological and technological properties as well as sensory characteristics of prepared cookies.

The obtained results showed that the investigated non – conventional seeds are good sources as food additives in food products system.

Key words : Pomegranate seeds; garden cress seeds; flaxseed; unconventional, phytochemical, omega fatty acids, food uses and application, oil blending.

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