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### **Oxidative stability of microencapsulated flax seed oil**

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Oxidation of long-chain polyunsaturated fatty acids is considered as a serious problem that often leads to loss of shelf-life, consumer acceptability, functionality, nutritional value and safety of food products. On the other hand, the seed meal after oil extraction provides a variety of components and could be used in nutritional applications. The current research is aimed to heighten the stability of omega 3 enriched oils. For this purpose, seeds of flax (*Linum usitatissimum* L.) will be procured from Oilseeds Research Institute, Faisalabad. The seeds will be subjected to proximate analysis. In the next step, seeds will be used to extract the polyunsaturated fatty acids (PUFA). The resultant PUFA enriched oil will be subjected to physicochemical characterization i.e., color, melting point, specific gravity, refractive index, iodine value & peroxide value. In the next phase, polysaccharide gums will be extracted from oilseed meal using ultrasound assisted technology and will be characterized for various physicochemical attributes. The extracted oil containing PUFAs together with wall material (polysaccharide gums) and emulsifier will be used to produce PUFA enriched oil microcapsules through spray drying. In the following step microcapsules will be characterized and subjected to *in vitro* digestion study. Finally, these microcapsules will be used to supplement ice-cream at different levels in order to study the effect of microencapsulation on physicochemical and sensory attributes of dairy-based products. The resultant data will be subjected to statistical analysis to determine the level of significance by using the software.

### **Biography**

Muhammad did MPhil in Food Science and Nutrition from Government College University Faisalabad, and doing PhD in Food Science and Technology from Government College University Faisalabad, nowadays he is in Aarhus University as a Guest Researcher. He has published five research papers in reputed journals. He has good command on chemistry and antioxidation of oils and microencapsulation techniques.

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