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A novel solid Self-Emulsifying Delivery System (SEDS) for the encapsulation of linseed oil and quercetin: Preparation and evaluation

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The aim of current research was to develop a solid Self-Emulsifying Delivery System (SEDS) to enhance the delivery of linseed oil and quercetin. The pseudo ternary phase diagram was constructed to optimize the suitable liquid formulation. Liquid absorption on solid absorbent carrier was used to convert liquid into solid self-emulsifying lipid formulation by simple physical mixture. The solid carrier of Aerosil 300 showed highest adsorption capacity. Besides, the solid SEDS prepared with liquid formulation/Aerosil 300 ratio of 2:1 had good flow properties. FTIR indicated that linseed oil and quercetin were encapsulated in Aerosil 300. XRD study suggested that the crystalline structure of quercetin transformed to molecularly dissolved state in solid SEDS. *In vitro* digestion and release experiments showed that after solid adsorption, linseed oil and quercetin exhibited delayed release patterns. The accelerated oxidation study revealed that non aqueous system was more beneficial to the storage of linseed oil and Aerosil 300 had no effect on the oxidation stability of linseed oil. Hence, solid SEDS is an attractive candidate for the encapsulation of functional oil and flavonoids for use in food industry.

Biography

Juan Huang has her expertise in research of micro and nanocarriers in the field of health. She has a rich experience in the research and application of lipid based delivery systems. Her field of research also contains other lipid based delivery system, for example, nanoemulsions, multilayer emulsions, self-emulsifying carriers and micro-gels.

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