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Study the production of lycopene-enriched edible oil using ultrasound technique

Somayeh Rahimi and **Mohaddeseh Mikani**
Iranian Research Organization for Science and Technology (IROST), Iran

Lycopene, as the main carotenoid is profitable and medicinal plant pigments originated from some fruits and vegetables, mainly tomato, as well as their wastes. Tomato paste wastes are rich in lycopene which usually are used as feeds or discarded. The current investigation reports on the lycopene extraction from tomato wastes based on ultrasound-assisted technique using sunflower oil as a green solvent while it was compared with conventional organic solvent extraction procedure. The final product of this process will be the sunflower oil which is full of lycopene. The independent variables were ultrasonic intensity (30-70 W/m2), solid/oil ratio (3.18-36.82 % w/v), and the extraction time (1.59–18.41 min). The optimum ultrasound-assisted extraction (UAE) condition was achieved with an ultrasonic intensity of 70 W/m2 and extraction time of 10 min. The current developed process i.e., ultrasound assisted extraction of lycopene from tomato wastes with the aid oil, could improve the extraction yield of lycopene by 87.25% compared to conventional solvent extraction. Evaluation of enriched oil had been done by measuring three major parameters such as acid, peroxide and p-anisidine values and the results showed that peroxide and p-anisidine decreased significantly in enriched sunfolwer oil by lycopene.

Biography

Somayeh Rahimi works as a researcher in the department of food science and technology in the Iranian Research Organization for Science and Technology (IROST), in Iran. She has completed her PhD at Tarbiat Modares University, Iran in 2012. Her research interests are the extraction of bioactive ingredients and natural colorant from plants, food industrial wastes and etc. to produce Functional foods and or nutraceuticals with health-promoting properties. For these purposes, she applies some novel food processing techniques such as ultrasound-assisted extraction, probiotic encapsulation and etc. Currently, she is focused on micro and nanoemulsions as an excellent carrier of components in food products.

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