

## **Formulation of Herbal Cream of *Portulaca oleracea* (purslane)**

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**Introduction:** *Portulaca oleracea* (purslane) is a traditional medicine used as an anti-cough, anti-inflammatory, blood purifying, analgesic, anti-burning and pain killer agent in Iran. In Iranian traditional medical books, it has been emphasized purslane has significant anti-inflammatory, anti-burning and anti-acne properties. It is also a rich source of unsaturated fatty acids (specially omega-3), protein, vitamins C, A and E. According to this, it seems that this plant is a suitable candidate for use in cosmetic creams. This study was conducted to formulate an herbal cream from the purslane seeds oil and juice.

**Materials and methods:** The purslane seeds oil was extracted with n-hexane solvent, using a soxhlet apparatus. The oil-hexane mixture was concentrated in a rotary evaporator at 40 °C to obtain the oil. In order to remove traces of hexane, the oil was heated for 1 h at 60 °C under vacuum. The aqueous juice was prepared by pressing and filtration of the fresh cultivated purslane. The fatty acid profile was determined by gas chromatography-mass spectroscopy apparatus (GC-MS). Oil in water (O/W) emulsion-based cream was formulated. The emulsifier (stearic acid) and other oil soluble components (cetyl alcohol, purslane seeds oil) were dissolved in the oil phase and heated to 75 °C. The preservatives and other water soluble components (methyl paraban, propyl paraban, triethanolamine, propylene glycol and juice of purslane) were dissolved in the aqueous phase and heated to 75 °C. The aqueous phase was then added to oil phase slowly with constant stirring and the mixture was homogenized for 30 min. Structure of emulsions was investigated with an optical microscope. The stability of emulsions was determined using the centrifugal test.

**Results and conclusion:** The composition of fatty acids in the purslane seeds oil was determined. In general, the oils exhibit a fatty acid profile with  $\alpha$ -linoleic acid as the most prevalent fatty acid, while linolic acid was found in a smaller proportion. Five formulations were prepared and F-5 was found as the most stable formulation without phase separation. Structure of the F-5 emulsion was detected as O/W.