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**OAT HULLS AND SEA BUCKTHORN POMACE – A POTENTIAL  
SOURCE OF ANTIOXIDANTS FOR HEMPSEED OIL**

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Hempseed oil, as well as other oils containing polyunsaturated fatty acids, is subjected to oxidation processes caused by air, heat or light. Usually these processes are suppressed by addition of various synthetic phenol type antioxidants. The aim of current research was to increase oxidative stability of vegetable oils with natural antioxidants. Herein, we demonstrate that the oxidative stability can be increased with natural antioxidants present in oat hulls and sea buckthorn pomace – by-products of food processing. Extracts from oat hulls or sea buckthorn pomace were prepared by maceration of ground plant material in the hempseed oil. The extraction was accelerated by ultrasound. It was established that the highest amount of polyphenols in extracts of both plant materials can be achieved within 30 min; further increase of extraction time sometimes even reduced the total amount of polyphenols. The highest amount of polyphenols (Folin-Ciocalteu method) in sea buckthorn extracts was  $7.73 \pm 0.29$  mg GAE  $100 \text{ g}^{-1}$ , but in oat hull extracts –  $4.63 \pm 0.21$  mg GAE  $100 \text{ g}^{-1}$ , when extracts were prepared by ultrasonification of hempseed oil containing 5% wt of plant material. Various amounts of plant material additives were used for extraction under optimized conditions. The highest antioxidant activity (detected at accelerated oxidation conditions and expressed as ratio of time when peroxide value of sample and blank reaches  $48 \text{ meq. O}_2 \text{ kg}^{-1}$ ) – 1.51 and 1.40 to 1.44, respectively – had extracts obtained from 1% wt additive of sea buckthorn pomace or 2.5-5% wt additive of oat hulls. The prepared hempseed oil extracts demonstrated higher oxidative stability than hempseed oil containing 0.02% additive of synthetic antioxidant BHT.

**Keywords:** hempseed oil, oat hull, sea buckthorn pomace, oxidative stability.

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