



UNIVERSITY OF AGRONOMIC SCIENCES AND VETERINARY MEDICINE – BUCUREȘTI



NATURAL PRESERVATIVE WITH ANTIOXIDANT ACTIVITY FOR FOOD OILS, EXTRACTED FROM SEA BUCKTHORN FRUITS (*HIPPOPHAE RHAMNOIDES*)

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DESCRIPTION OF THE INVENTION

Main purposes of the invention. The invention relates to a natural product as a solution with strong antioxidant properties indicated primarily for the preservation of edible oils as an alternative to tert-butyl-4-hydroxy-anisole (BHA) and 2,6-di-tert-butyl-p-cresol (BHT) synthetic antioxidants. The antioxidant activity of the product was tested in the laboratories of U.A.S.V.M. of Bucharest. The results indicate the following antioxidant properties of the product: (1) it acts as a chelator of transition metal ions, especially Fe^{2+} ion, which is considered an initiator of lipid oxidation in the Fenton reaction; (2) it has the ability to neutralize reactive oxygen and nitrogen species (hydroxyl radical, superoxide anion, hydrogen peroxide, hypochlorite anion and nitric oxide); (3) it inhibits the lipid peroxidation of a linoleic acid emulsion; (4) it inhibits the peroxidation of phospholipids extracted from rat brain. It is well known that sea buckthorn fruit is rich in vitamins A, C, E, K, flavonoids, lycopene, organic acids, kaempferol, triglycerides, phytosterols, polyphenolic compounds and minerals. The high content of vitamins A, C, E, flavonoids, polyphenols, carotenoids and selenium ensure a powerful antioxidant activity of sea buckthorn fruit. The natural product with antioxidant activity proposed by us has a beneficial effect on consumers because: (1) the use of synthetic antioxidants can be avoided; (2) inhibits the formation of trans-trans peroxide stereoisomers; (3) the product has a beneficial effect on the health of consumers due to high content in flavonoids, carotenoids, liposoluble vitamins and minerals.

Technical problem solved. The technical problem solved by the invention is that the natural product with antioxidant activity proposed by us is superior to synthetic antioxidants for the following reasons: (1) the introduction of the natural product in oils in concentration of 100 ppm has the same effect as BHA and BHT synthetic antioxidants added in double concentration (200 ppm); (2) the product is non-toxic; (3) the product contains, besides polyphenols, other compounds with beneficial effects on consumer health (carotenoids, vitamins A, E and K, phytosterols, etc.); (4) unlike BHT and BHA synthetic antioxidants, which favor the formation of trans-trans peroxide stereoisomers, our product favors the formation of cis-trans peroxide stereoisomers; (5) the product has a low price and it is ecological; (6) adding this product to oils will inhibit oxidation (rancidity), increasing their validity and will have a beneficial effect on consumers health.

Claims. Liquid natural preservative extracted from sea buckthorn fruits, which prevents the oxidation (rancidity) of food oils, consisting mainly of polyphenols in concentration of 5...10 g gallic acid equivalent /100 ml.

FIELDS OF APPLICATION: FOOD INDUSTRY

MEDALS / AWARDS OF INVENTION

PNCDI III - Programme 1 - Subprogramme 1.1. Human Resources Rewarding research results - Patents, PRECBVT-2017 - PN-III-P1-1.1- PRECBVT- 2017-0785 - BREVET 127155/26.02.2016 - NATURAL PRESERVATIVE WITH ANTIOXIDANT ACTIVITY FOR FOOD OILS, EXTRACTED FROM SEA BUCKTHORN FRUITS (*HIPPOPHAE RHAMNOIDES*)

