

INSTITUTE OF CHEMISTRY

COORDINATION COMPOUNDS BASED ON 1-PHENYL-1,3-BUTANEDIONE ISONICOTINOYLHIDRAZONE AS STIMULATORS THE BIOSYNTHESIS OF PHENOLIC COMPONENTS BY MICROALGAE *PORPHYRIDIUM CRUENTUM*

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PURPOSE

The invention relates to two new coordination compounds: bis[1-phenyl-3-methyl-6-(pyridinium-4-yl)-4,5-diaza-hexa-1,3-dien-1,6-diolato(-2)-O¹,N⁴,O⁶]iron(III) nitrate and bis[1-phenyl-3-methyl-6-(pyridinium-4-yl)-4,5-diaza-hexa-1,3-dien-1-hydroxi-6-olato(-2)-O¹,N⁴,O⁶]iron(III) sulfate tetrahydrate and to the cultivation process of microalgae *Porphyridium cruentum*, with their use for increasing the phenol content in the porphyridium biomass.

SOLUTION

There have been synthesised two new iron coordination compounds with ligand obtained by condensation of 1-phenyl-1,3-butanedione with isonicotinoylhydrazide and iron sulfat(II) - [Fe(L)₂]₂SO₄ · 4H₂O or iron nitrate(III) - [Fe(L-H)₂]₂NO₃, (where L = 1-phenyl-1,3-butanedione isonicotinoylhidrazone). These complexes have been studied as stimulators the biosynthesis of phenolic components by microalgae *Porphyridium cruentum*.

Patent no.
MD 4365
31.03.2016

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The obtained data demonstrate the increase of biomass content of phenols in *Porphyridium cruentum* with 18-20 % for [Fe(LH)₂]₂NO₃ and 15-17% for [Fe(L)₂]₂SO₄ · 4H₂O according to the claimed process, compared to the nearest process. The *Porphyridium cruentum* microalgae biomass is a modern source of antioxidants, for this reason, the growth of phenols content is a factor of increasing of the porphyridium value as producer of substances with antioxidant properties.

ADVANTAGES

The studied properties of compounds are a interest in biotechnology for stimulating the biosynthesis of phenols, compounds with antioxidant properties of microalgae biomass *Porphyridium cruentum*.

STAGE

Laboratory tests

