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HYPOTENSIVE AND ANTIOXIDANT PROPERTIES OF GAMMA-HYDROXY ACID HYDRAZIDES

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ABSTRACT

A method has been proposed for the preparation of 4-hydroxybutanoic acid hydrazides for the first time. It has been established that the target products are obtained by the interaction of 2-substituted (*H*, alkyl, aralkyl, allyl, etc.)-4-substituted-4-butanolides with 85% aqueous solution hydrazine hydrate. Testing was carried out on white mongrel mice and reliably shown that the introduction of a hydroxypropyl residue into the composition of the synthesized hydrazides leads to new properties, namely hypotensive activity, not previously observed in compounds class of carboxylic acid hydrazides of various structures. The most active compounds have been selected and tested in rats and cats. It has been established that the lethal dose (lethal doses 50) of the proposed compounds ranges from 550-762 mg/kg and they exhibit superior activity compared to those used in the medical preparation "Dibazol".

In order to find new useful properties in a series of gamma-hydroxy acid hydrazides, their antioxidant features were studied by the method of competitive reactions. As a competitive acceptor, 4-nitroso-*N,N*-dimethylaniline was used.

According to the rate of discoloration of the last the reactivity of *H* radicals with respect to the studied compounds was determined. *H* radicals were initiated by photolysis of hydrogen peroxide (conc, 10⁻³ mol/l), under exposure to ultraviolet radiation, at a wavelength of 313 nm. Initiation rate *H* radicals were measured by the rate of change in the optical density of para-Nitroso-*N,N*-dimethyl aniline in distilled water and in the presence of the studied compounds.

As a result of the research, it was found that all compounds of this series have antioxidant properties, and some of them are comparable with renowned antioxidant vitamin C.

KEYWORDS: gamma-hydroxycarboxylic acid hydrazides, cyclic esters, competitive reactions, hypotensive activity, antioxidant activity.

INTRODUCTION

As is known, derivatives of organic acids, particularly hydrazides, are widely used as starting compounds in fine organic chemistry. The data on the useful properties of the latter are rather scanty. Recently it has been shown that some derivatives

of the naproxen series (S) that are acetohydrazides of various structures have antitumor activity against cell lines of human prostate carcinoma [Han M *et al.*, 2018]. Some hydrazides of substituted benzoic acids also exhibit a similar property

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