

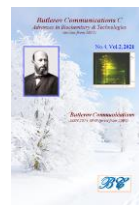


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4-(7-Cyclohepta-1,3,5-trienyl)aniline derivatives and assessment of their biological activity

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Keywords: 4-(7-cyclohepta-1,3,5-trienyl)aniline (tropylyated aniline), N-arylmethylene-4-(7-cyclohepta-1,3,5-trienyl)anilines, N-2-hydroxy-phenylmethyl-4¹-(7-cyclohepta-1,3,5-trienyl)aniline, N-2-hydroxyphenylmethylene-4¹-(7-cyclohepta-1,3,5-trienyl)aniline, growth-regulating activity, lettuce seeds.

Abstract

Tropylium salts are convenient objects for the introduction of the pharmacophoric 1,3,5-cycloheptatriene moiety into organic molecules belonging to various classes of organic compounds: aromatic or heterocyclic amines, amides of carbonic or thiocarbonic acids, Schiff bases (azomethines). These reactions have been insufficiently studied: it has been established that new compounds obtained on the basis of aromatic amines are usually stable, but in some cases the tropylium cycle may be narrowed or isomerized. Prepared convenient preparative methods for the synthesis of biologically active derivatives of 4-(7-cyclohepta-1,3,5-trienyl) aniline (tropylyated aniline) – N-arylmethylene-4-(7-cyclohepta-1,3,5-trienyl)anilines. The possibility of the synthesis of N-arylmethylene-4-(7-cyclohepta-1,3,5-trienyl)anilines by the transamination reaction, which consists in the interaction of 4-(7-cyclohepta-1,3,5-trienyl)aniline (tropylyated aniline) with Schiff bases (azomethines) in ethanol. In the course of research, it was found that donor (OCH₃, OH) or acceptor (NO₂, Br) substituents in the aldehyde fragment of azomethines (Schiff bases) practically do not affect the yield of tropylyated products – tropylyated azomethines (N-arylmethylene-4-(7-cyclohepta-1,3,5-trienyl)anilines) in the transamination reaction. Biotesting of the most promising synthesized compounds (N-2-hydroxy-phenylmethyl-4¹-(7-cyclohepta-1,3,5-trienyl)aniline and N-2-hydroxyphenyl-methylene-4¹-(7-cyclohepta-1,3,5-trienyl)aniline) on lettuce seeds. The growth-regulating activity of aqueous-alcoholic suspensions of the obtained compounds – N-2-hydroxyphenylmethyl-4¹-(7-cyclohepta-1,3,5-trienyl)aniline (tropylyated secondary amine) and N-2-hydroxyphenylmethylene-4¹-(7-cyclohepta-1,3,5-tri-

enyl)aniline (tropyliated azomethine) in concentrations of 10⁻³%, 10⁻⁴% and 10⁻⁵%. Seed treatment with test compounds at a concentration of 10-3%, 10-4% influenced the germination and germination energy of lettuce seeds. It was found that the synthesized substances have an ambiguous effect on the growth and development of lettuce plants. A greater stimulation of germination and development of lettuce seeds was noted when treated with N-2-hydroxyphenylmethyl-4¹-(7-cyclohepta-1,3,5-trienyl)aniline.

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