

## OBTAINING AQUATIC FORM OF PYRROLIDINE N-METHYL-1-[4-CITYNYL] FULLEREN-C60- [1.9C] IN POLYMER COMPOSITION FOR COPYING

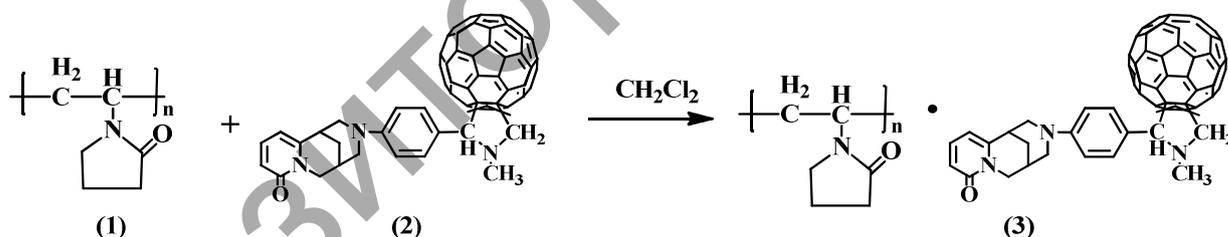
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The discovery of fullerene biological activity, manifested in such processes as enzyme inhibition, antiviral activity, DNA cleavage, etc. [1-3], gave impetus to research in the field of obtaining water-soluble fullerene derivatives or translating it into a water-soluble state by solubilizing various surfactants or complexing with polymers. There are various ways to produce fullerene-containing polymers, resulting in two different types of corresponding products. The first way is the reaction of fullerene and its derivatives with polymers, as a result of which covalent incorporation of fullerene into the chemical structure of the latter occurs; the second is the mechanical introduction of fullerene into polymers (doping), which is not accompanied by the formation of a covalent bond between them. The attention of researchers to the doping of polymers with fullerene is obviously due to the simplicity of its introduction (either in the native form or in the form of solutions in organic solvents) and the possibility of using small amounts of the modifier. In addition, a smaller distortion of the electronic structure and, therefore, the properties of fullerene molecules in the absence of covalent interaction "fullerene fragments of the polymer chain" was expected.

We study the reaction of the synthesis of fullerene C60 derivatives with natural compounds. To obtain a water-soluble form of N-methyl-1- [4-cytizinyl] fullerene-C60- [1.9s] pyrrolidine (2) previously synthesized by us (2) [4], we used the method of complexation of fullerene C60 with polyvinylpyrrolidone (PVP) (1):



The formation of complex (3) occurs as a result of the solubilization of the fullerene-pyrrolidine (2) with PVP chains (1) and the physical interaction of the lactam group with the fullerene sphere. The resulting complex (3) is soluble in water. Structure (3) is established by <sup>1</sup>H and <sup>13</sup>C NMR spectroscopy. A change in the physicochemical properties (2) during the transition from individual molecules to aggregated forms leads to a change in their properties, which ultimately substantially changes the response of the biological system. The study of properties (3) continues.

### References

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