

AMINO-1,2,4-TRIAZOLES AS A RAW MATERIAL FOR THE FINE ORGANIC SYNTHESIS INDUSTRY (REVIEW)

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The review summarizes the information on the industrial use of 3- and 4-amino-1,2,4-triazoles - the basic raw material for the industry of fine organic synthesis. 3 and 4-substituted amino-1,2,4-triazoles have been used for a long time in the production of agricultural products, pharmaceuticals, dyes, high-energy materials, and anti-corrosion additives. Less well known is their use for the production of analytical reagents, flotation reagents, as well as for the production of heat-resistant polymers, products with fluorescent properties and ionic liquids, which are used in applied sciences, biotechnology, energy, and chemistry.

The purpose of this communication is to consider in detail the participation of 3- and 4-amino-1,2,4-triazoles in the production and use of various agricultural and medical products.

*Descriptions and schemes of chemical reactions of existing production methods for the synthesis of 3- and 4-amino-1,2,4-triazoles, as well as some methods of obtaining these substances in laboratory conditions, are given. The two main areas of use of these amines and their derivatives: agriculture and medicine have been highlighted. It is shown that one of the most well-known branches of widespread use of 3- and 4-amino-1,2,4-triazoles in agriculture is the production of plant protection products. On the basis of these substances, the mass production of various insecticides, fungicides, plant growth regulators, retardants (means for suppressing the growth of stems and shoots), inhibitors of nitrification of nitrogen fertilizers is organized. The use of these amines in medicine consists in the production of known drugs on their basis, such as furazonal (has a pronounced antimicrobial effect, is effective against *Staphylococcus aureus*, dysentery bacteria, salmonellosis), thiotriazoline and cardiotril (cardiological drugs with anti-ischemic and membrane stabilizing effects) (platelet growth factor antagonist).*

Keywords: amino-1,2,4-triazoles, production, raw materials for synthesis, pesticides, pharmaceuticals.

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