

**OBTAINING THE QUATERNARY AMMONIUM SALT OF VINBLASTINE
WITH 4-METHOXYPHENYL 2-CHLOROACETATE**

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Vinblastine is a cytostatic agent, antitumor, a medicinal product from the group of periwinkle alkaloids (lat. *Vinca rosea* L., *Catharanthus roseus*). The mechanism of action is associated with the blockade of tubulin and the arrest of cell division in metaphase. The use of vinblastine in lymphogranulomatosis, lymphocytic lymphoma, lymphosarcoma, reticulosarcoma, non-Hodgkin's lymphoma, histiocytic lymphoma, chronic leukemia, mycosis fungoides, germ cell tumor of the testicle, germ cell tumor of the ovary, testicular tumor, multiple myeloma, chorionepithelioma, Kaposi's sarcoma, Letterer-Siwe disease, neuroblastoma, kidney cancer, bladder cancer, lung cancer. Side effects of vinblastine on the nervous system and sensory organs include headache, dizziness, damage to the eighth cranial nerve, depression, paresthesia, decreased deep tendon reflexes, peripheral neuritis, and seizures. Cardiovascular and blood (hematopoiesis, hemostasis) side effects include hypertension, cerebrovascular accident, Raynaud's phenomenon (worsening of symptoms), myocardial infarction, leukopenia, granulocytopenia, anemia, and thrombocytopenia.

In order to prevent some of these adverse events, the ammonium salt of vinblastine was obtained by triturating it with 4-methoxyphenyl 2-chloroacetate. The reactions of 4-methoxyphenyl 2-chloroacetate were first studied with Vinblastine. The reactions were carried out using ethyl acetate, acetone and ethanol as solvents. To carry out the reaction, Vinblastine and 4-methoxyphenyl 2-chloroacetate were dissolved in ethyl alcohol and mixed in a 1:2 molar ratio. No heating of the reaction mass or formation of white smoke was observed during the mixing of the reagents. This suggested that 4-methoxyphenyl 2-chloroacetate did not react vigorously with Vinblastine. However, after this process, it was found that the product yield was not high when the vessel was cooled. The reactions were carried out at temperatures ranging from 35-40, 55-60, 70-75 °C and in all experiments, it was found that the products were obtained in high yields at a temperature range of 50-60 °C. Therefore, all subsequent experiments were carried out with heating at 50-60 °C for 3-4 hours. The experimental results showed that the most suitable solvent for the reaction was ethanol, and the reaction was conveniently carried out at 60 °C for 3 hours in a 1:2 molar ratio of the reagents. To purify the obtained salts, they were heated in ethyl alcohol and treated with activated charcoal, filtered, and recrystallized. As a result, white salts were formed. The purity of each salt was determined using thin layer chromatography, their physical constants were determined, and their structure was studied. The structure of the obtained compounds was studied using modern physical chemical research methods. In the IR spectra of the products, 1441, 1520, 1560, (C=C in the aromatic ring), vibrations for the C=C bond in the pyridine molecule, and 1610 vibrations for the N=C bond can be seen. 1650 (N+=C). In the ¹H NMR spectrum (400 MHz, CDCl₃, ppm, J/Hz):- δ: 4.98 m.u. there are signals corresponding to the 2 H atoms in the N⁺-CH₂- bond at 7.30 m.u., and to the 2nd and 3rd H atoms in the benzene ring at 7.60 m.u. and 8.24 m.u., respectively.