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THIS IS UNEVALUATED INFORMATION

SOURCE Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, No 1, 1953, p 184.

RECENT USSR WORK ON THE SYNTHESIS OF MORPHINE SUBSTITUTES

/Comment: According to the description given below, the drugs in question are chemically related to demerol, except that they bear an ester group instead of a carboxylic acid group in the 4 (gamma) position of the piperidine nucleus. If the drugs whose synthesis is described are not habit-forming, as claimed, they differ in that respect from demerol. Some drugs of this group (e.g., demerol) exert a pronounced spasmolytic effect which is both of the neural (atropine) and muscular (papaverine) type./

In a report entitled "Synthesis of Analgesic Substances," which was presented by I. N. Nazarov, Corresponding Member of the Academy of Sciences USSR, at the Joint Session of the Department of Chemical Sciences, Academy of Sciences USSR, and the Academy of Sciences Uzbek SSR, held on 24-29 October 1952 at Tashkent, the following observations were made by the author of the report in connection with a description of the work on the synthesis of analgesics that has been carried out under his direction.

Solution of the problem of synthesizing analgesics depends mainly on the development of simple and practicable methods for the preparation of gamma-piperidones. An important step forward in the synthesis of analgesics is represented by the work of Nazarov's group on the creation of new and simple methods for preparing heterocyclic compounds, particularly gamma-piperidones, on the basis of acetylene. The principal reactions involved consist in the condensation of ketones with vinyl acetylene. The next stage in the synthesis of the analgesics is introduction of a phenyl radical and of an ether grouping into gamma-piperidones in the position occupied by the carbonyl group. The last step is esterification of 4-phenyl-4-piperidols and their transformation into esters of organic acids. The physiological activity of the compounds synthesized by Nazarov has been tested under the direction of Prof M. D. Mashkovskiy.

The syntheses described form an important stage in the development of the chemistry of analgesics, because the resulting compounds, on the basis of all of their characteristics, must be regarded as superior to any drugs having a similar

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action that are known at present (e.g., morphine, demerol, phenandon). In addition to having a high analgesic activity, they are relatively nontoxic. While three to five times more active than morphine, they are free of many of the objectionable properties of morphine, i.e., they are not habit-forming and do not produce any undesirable side effects. As a result of the availability of promedol [a substance synthesized by I. N. Nazarov], USSR medicine has been enriched by a domestic drug that has a very high activity and an extensive range of applications. Promedol is not the last word of synthetic organic chemistry; the development of other substances with similar properties may be expected soon.

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