PREPARATION OF N-BORNYLUREA

M. E. Spiridonova, O. I. Korobkova,
and L. I. Olishevets

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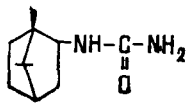
At the present time, great attention is being devoted to the search for nontoxic drugs of natural origin or their synthetic analogs.

Camphor, which is widely used in medicine, is obtained from the natural product pinene [1] and is a valuable cardiotonic agent. It has a comparatively low toxicity [2] but its very low solubility in water is a great disadvantage, since oil solutions of camphor cause oleomas on parenteral injection [3].

Our aim was to find a readily water-soluble nontoxic analog of camphor. A water-soluble preparation was obtained by the introduction of an urea (carbamide) residue in position 2 of the camphor ring.



We performed the reaction in the following way: a mixture of 3.43 g of bornyl chloride and 3.6 g of urea in a ratio of 1:3 was heated at 120-122°C for an hour, and then the melt was dissolved in water, the solution was boiled with activated carbon and filtered, and the solvent was distilled off by the usual procedures. This gave 2.89 g (75% of theoretical) of the desired product with mp 114.5-115°C, readily soluble in water. Analysis of the compound obtained for carbon and nitrogen corresponded to the given composition. IR spectrum (UR-20, KBr, cm^{-1}): 1460 (ν_{CH_2} of a cyclane); 1650-1700 (ν_{C-NH}, $\overset{\|}{O}$) ; 3200-3400 ($\nu_{prim.\ NH_2}$).

Biological trials of the water-soluble preparation have shown that the compound is practically nontoxic (LD_{50} > 1000 mg/kg) but possesses a very weak cardiotonic action.

LITERATURE CITED

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