The Synthesis of Isoxazolyl- and Isothiazolylcarbamides Exhibiting Antitumor Activity

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Abstract—Accessible 5-phenyl(*p*-tolyl)isoxazol-3-carboxylic, 4,5-dichlorothiazol-3-carboxylic and 5-(benzylsulfanyl)-4-chlorothiazol-3-carboxylic acids were converted via a series of cascade transformations into the corresponding (1,2-azolyl)-3-carbonyl azides whose reaction with slightly basic aryl(heteryl)amines led to generation of 1-(1,2-azolyl)-3-aryl(heteryl)carbamides. To obtain isoxazolyl(isothiazolyl)carbamides containing the residues of highly basic amines, (1,2-azolyl)-3-carbonyl azides were preliminary transformed into aryl (1,2-azol-3-yl)carbamates by the action of phenol or 4-fluorophenol. Carbamates then were introduced into reaction with aliphatic or heterocyclic amines. Some of the obtained compounds and their precursors show high antitumor activity and are capable to increase the effect of cytostatic drugs applied in the medical practice.

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