Thermolysis of some N-arylbenzamidoximes: Mechanistic studies for formation of anilide, oxazole and imidazole derivatives

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Abstract

The thermolysis of N-2-pyridylbenzamidoxime I under nitrogen atmosphere for 5 hours gives rise to 2-phenyl-1H-imidazo[4,5-b]pyridine and N-(pyridin-2-yl)benzamide as the major products (52.4 and 18.11%, respectively), in addition to 2-hydroxy pyridine, benzonitrile, benzoic acid, 2-aminopyridine, 2-phenyloxazolo[4,5-b]pyridine, 9H-pyrrolo[2,3-b:5,4-b']dipyridine and 2,4,6-triphenyl-1,3,5-triazine. Also, heating N- alpha-naphthylbenzamidoxime II under the same conditions gave N-(alpha-Naphthyl)benzamide, 2-Phenyl-3H-naphtho[2,1-d] imidazole as the major products besides benzonitrile, benzoic acid, alpha-naphthylamine and 2-phenylnaphtho[1,2-d]oxazole. In the presence of tetralin, I gave 1-hydroxytetralin, alpha-tetralone and 1,1'-bitetrayl besides the previous products. The reaction and isolated products have been interpreted in terms of a free radical mechanism involving the homolysis of N-O and/or C-N bonds.

Keywords

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