

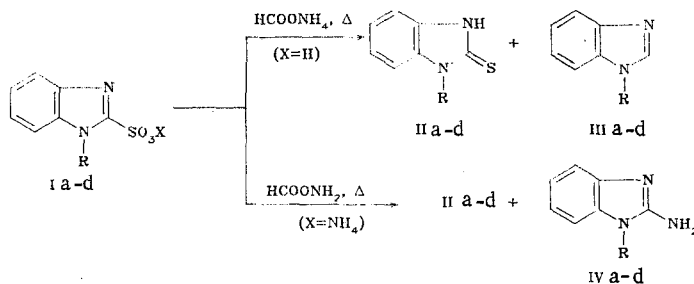
REDUCTION OF BENZIMIDAZOLE-2-SULFONIC ACIDS

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It is known that sulfonic acids, like carboxylic acids, are difficult to reduce. We have found that benzimidazole-2-sulfonic acids (I) are relatively easily converted to benzimidazole-2-thiones (II) in 40-60% yields by heating with ammonium formate at 150-160°C without a solvent. In addition to thiones II, benzimidazoles III are also formed in 25-30% yields. Since thiones II are not converted to III under these conditions, the latter are, in all likelihood, formed as a result of reductive desulfuration of sulfonic acids I.

When the ammonium salts of sulfonic acids I are refluxed in formamide, they are converted to thiones II (in 35-40% yields) and 2-aminobenzimidazoles IV (in 20-30% yields).



I-IV a R=H; b R=CH<sub>3</sub>; c R=C<sub>2</sub>H<sub>5</sub>; d R=CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>

Compounds IIa-d, IIIa-d, and IVa-d were identified by comparison with genuine samples.

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