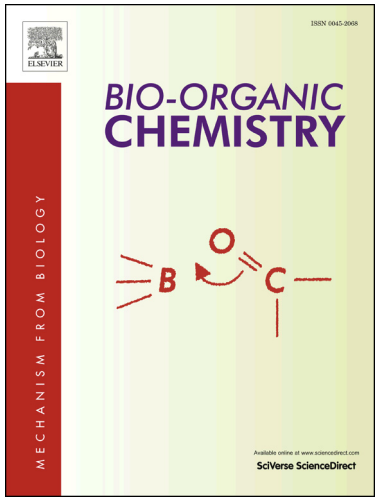

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5-Bromo-2-Aryl benzimidazole Derivatives as Non-Cytotoxic Potential Dual Inhibitors of α-Glucosidase and Urease Enzymes

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Abstract: On the basis of previous report on promising α-glucosidase inhibitory activity of 5-bromo-2-aryl benzimidazole derivatives, these derivatives were further screened for urease inhibitory and cytotoxicity activity in order to get more potent and non-cytotoxic potential dual inhibitor for the patients suffering from diabetes as well as peptic ulcer. In this study, all compounds showed varying degree of potency in the range of (IC_{50} = 8.15 ± 0.03-354.67 ± 0.19 μM) as compared to standard thiourea (IC_{50} = 21.25 ± 0.15 μM). It is worth mentioning that derivatives **7** (IC_{50} = 12.07 ± 0.05 μM), **8** (IC_{50} = 10.57 ± 0.12 μM), **11** (IC_{50} = 13.76 ± 0.02 μM), **14** (IC_{50} = 15.70 ± 0.12 μM) and **22** (IC_{50} = 8.15 ± 0.03 μM) were found to be more potent inhibitors than standard. All compounds were also evaluated for cytotoxicity towards 3T3 mouse fibroblast cell line and found to be completely non-toxic. Previously benzimidazole **1-25** were also showed α-glucosidase inhibitory potential. *In silico* studies were performed on the lead molecules *i.e.* **2**, **7**, **8**, **11**, **14**, and **22**, in order to rationalize the binding interaction of compounds with the active site of urease enzyme.

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