

Remarkable Iodine-Catalyzed Synthesis of Novel Pyrrole- Bearing *N*-Polyaromatic β -Lactams

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Abstract:

Because of their interesting biological properties various methods for the synthesis of substituted pyrroles are described in the literature. However, synthesis of pyrroles fused with a β -lactam ring has not been reported. Our group has demonstrated synthesis and biological evaluation of various β -lactams as anticancer agents. The anticancer activities of these compounds have prompted us to study the synthesis of pyrroles bound to the β -lactams. We have identified an expeditious synthetic method for the preparation of pyrroles fused with β -lactams by reacting 3-amino β -lactams with acetonylacetone in the presence of catalytic amounts (5 mol%) of molecular iodine at room temperature. It has also been discovered that the reaction gives products under domestic and automated microwave oven irradiation. To our knowledge, there are no other prior reports that describe the synthesis of pyrrole-substituted β -lactams.