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Title:	Conversion of 2,3-Dihydrobenzo[b][1,4]dioxine-2-carboxamides to 3-Oxoquinolin-2(1H)-ones via Ring-Opening and Formal 6-endo-trig Cyclization-Involvement Heck Reactions
Authors:	Bhattacharya, D. (/jspui/browse?type=author&value=Bhattacharya%2C+D.) Tomar, R. (/jspui/browse?type=author&value=Tomar%2C+R.) Babu, S.A. (/jspui/browse?type=author&value=Babu%2C+S.A.)
Keywords:	C-C coupling Heck reaction Nitrogen heterocycles Palladium Synthetic methods
Issue Date:	2020
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Citation:	Asian Journal of Organic Chemistry, 9(5), pp.829-839.
Abstract:	We report the conversion of 2,3-dihydrobenzo[b][1,4]dioxine-2-carboxamides, (derived from 2,3-dihydrobenzo[b][1,4]dioxine-2-carboxylic acid and 2-haloanilines) to 3-oxoquinolin-2(1H)-one motifs using catalytic amounts of Pd(OAc) ₂ , PPh ₃ , BINOL and Cs ₂ CO ₃ (1.5 equiv). This conversion occurred via the less common formal 6-endo-trig cyclization and chelation-controlled β-arylation (Heck-type reaction) pathways. Initially, a base-mediated ring-opening of the 2,3-dihydrobenzo[b][1,4]dioxine moiety generates an acrylamide intermediate in situ, which then undergoes a formal 6-endo-trig cyclization-involved Heck-type reaction to afford 3-oxoquinolin-2(1H)-one motif. The proposed acrylamide intermediate was isolated, characterized by the X-ray structure analysis and then, it was also treated under the experimental conditions, which afforded the expected 3-oxoquinolin-2(1H)-one; thus, providing a strong support for the proposed mechanism. Various 3-oxoquinolin-2(1H)-one motifs were synthesized in moderate to good yields. Representative 3-oxoquinolin-2(1H)-one motifs were characterized by X-ray analysis.
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