Study of the behaviour of unsaturated ketoacids towards nitrogen and carbon nucleophiles

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The work deals with the behaviour of 3-(4-bromo) benzoyl-prop-2-enoic acid -towards nitrogen nucleophiles, namely, 3,5-dimethyl pyrazole, 3-methyl-5-oxo pyrazoline, 3-phenyl-5-oxo pyrazoline, 2-methyl 4(3H)-quinazolinone, 2-methyl-6,8-dibromo-4(3H) quinazolinone and o-phenyl-enediamine under aza Michael reaction conditions and towards carbon nucleophiles namely, 3-phenyl-5-oxo pyrazoline, cyclohexanone, and camphor under Michael reaction conditions and yielded the aza Michael and Michael adducts, respectively. The aza Michael adducts have been reacted with nitrogen nucleophiles namely hydrazine hydrate and yielded the corresponding pyridazinone which converted to pyridazinone derivative via interaction with piperidine and pyridazine derivative via interaction with phosphoryl chloride and phosphorus pentachloride. Also, the aza Michael adducts underwent ring closure by using acetic anhydride and hydroxyl amine and afforded the furanone derivative and oxazinone derivative, respectively. Also the ring closure for the Michael adducts has been discussed. Structure elucidation for synthesized compounds has been obtained from chemical tools and physical tools e.g. Infrared spectra, 1H-NMR and EI-MS. The course of each reaction has been traced via an acceptable mechanism.