

### 3.1 Discussion

The designed compounds were prepared according to scheme 3.1. The potassium salt of 2-methylindoline in acetonitril was treated with the solution of 3-bromoprop-1-yne in acetonitril. The mixture was heated up to 78 C° with continuous stirring for 80 minutes. Cooled, filtered, concentrated in vacuo and the mixture was extracted with chloroform and distilled water using separatory funnel. The organic layer was dried with Magnesium sulfate anhydrous, filtered and concentrated in vacuo to afford the desired brown crystals, recrystallization from diethylether to afford the desired compound **2-methyl-1-(prop-2-yn-1-yl)-2,3-dihydro-1H-indole, (AZ-1)**.

(AZ-1) generated through nucleophilic displacement for the bromine located at 3-bromoprop-1-yne. The mannich reaction of 2-methyl-1-(prop-2-yn-1-yl)-2,3-dihydro-1H-indole with paraformaldehyde, appropriate cyclic amine and catalytic amount of cuprous chloride, yielded the desired products (AZ2-AZ7). The IR, <sup>1</sup>H-NMR, <sup>13</sup>C-NMR and elemental analysis were consistent with the assigned structures. The proposed mechanism for mannich reaction is outlined in scheme 3.2.

**In order for mannich reaction to proceed a reactive Immonium cations intermediates, should be formed from the condensation of the formaldehyde and the appropriate amines (Schiff base formation). The attack of the carbonion in 2-methyl-1-(prop-2-yn-1-yl)-2,3-dihydro-1H-indole cuprous salt on the Schiff base, generate the desired mannich products (AZ2-AZ7), Scheme 3.2.**