Imines represent an important class of molecules that are widely used (as intermediates) in the synthesis of a number of N-heterocyclic compounds [1]. These molecules are a product of reversible condensation of an amine and an aldehyde formed through the dynamic bond (a thermodynamically favored product).

General procedure for the synthesis of new carbazole substituted imines: 14.26 mmol of 3-amino-9-ethylcarbazole were dissolved in ethanol (30 ml) and added to 14.26 mmol Na2CO3 and 14.26 mmol aldehydes derivatives. The reaction mixture was then refluxed for 24 hours at 90°C. The solution was extracted with AcOEt with an aqueous phase. The organic phase was washed three times with water, dried with anhydrous magnesium sulphate, and evaporated under reduced pressure.

The X-ray diffraction (XRD) data for the imines samples were collected using a Bruker-Nonius KappaCCD single-crystal diffractometer (Mo Ka radiation, λ = 0.71073 Å), installed at IC-CNR, Bari, Italy. The structures were solved by Direct Methods implemented in SIR2014 [2] and refined by SHELXL2014 [3] using a full-matrix least-squares method based on F2. The non-hydrogen atoms were refined anisotropically. All the structures were characterized by non-negligible hydrogen bonds.

In Figure the molecular structure of one of the imine compounds [N-(5-nitrobenzylidene)-9-ethyl-9H-carbazol-3-amine (C21H17N3O2)] is shown.

The steps of imines synthesis and the main crystallographic results of the single crystal XRD study of the imines compounds will be described.