



## Synthesis, Characterization and Crystal Structure of (4-Amino-2-ethoxy-5-nitrophenyl)(piperidin-1-yl) methanone

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### ABSTRACT

The biological importance of piperidine and carboxamides derivatives in different disciplines of medicines have received considerable attention owing to their wide range of biological and pharmacological activities. The present study has been carried out on newly synthesized 4-Amino-2-ethoxy-5-nitrophenyl (piperidin-1-yl) methanone (**3**) by hydrolysis of ester (**1**) to acid (**2**) with sodium hydroxide in methanol and followed by acid-amine coupling with piperidine in presence of HATU, triethylamine to obtain compound (**3**). The newly synthesized, (4-Amino-2-ethoxy-5-nitrophenyl) (piperidin-1-yl) methanone (**3**) is characterized by Mass, IR, <sup>1</sup>H & <sup>13</sup>C NMR studies. The structure is further confirmed by single crystal XRD data. Compound (**3**) crystallizes in monoclinic centrosymmetric P21/c space group with  $a = 11.968(6) \text{ \AA}$ ,  $b = 8.992(4) \text{ \AA}$ ,  $c = 16.175(6) \text{ \AA}$ ,  $\beta = 122.16(3)^\circ$ ,  $V = 1473.6(12) \text{ \AA}^3$  and  $Z = 4$ . The dihedral angle between the phenyl and piperidine rings is  $86.52^\circ$ . In the crystal structure of compound (**3**), there exists a one dimensional chain along crystallographic c-axis formed by strong N-H...O intermolecular hydrogen bonding interaction, two such chains interact through weak C-H...O intermolecular hydrogen bonding interactions.

**Keywords:** (4-Amino-2-ethoxy-5-nitrophenyl) (piperidin-1-yl) methanone, Synthesis, Characterization, Single Crystal, N-H...O and C-H...O hydrogen bonds.

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