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## RESEARCH ARTICLE

**SYNTHESIS AND ANTIOXIDANT ACTIVITY OF THE 2-METHYL BENZIMIDAZOLE**Sarika Saini<sup>1\*</sup>, Dhiman Neerupma<sup>2</sup>, Aman Mittal<sup>1</sup>, Gaurav Kumar<sup>1</sup><sup>1</sup>Smt. Tarawati Institute of Biomedical and Allied Sciences, Rookree, Haridwar, Uttarakhand, India<sup>2</sup>Amity Institute of Pharmacy, Amity University, Noida, UP, India\*Corresponding Author's Email: [sarikasaini1991@gmail.com](mailto:sarikasaini1991@gmail.com)

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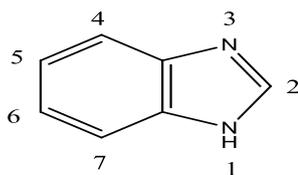
**ABSTRACT**

2-methyl benzimidazole is a heterocyclic organic compound having an important pharmacophoric group which is used in medicinal industry. o-Phenyldiamine was treated with acid in the presence of polyphosphoric acid and other solvents. The presence of specific group was determined by FTIR spectroscopy. The obtaining compound was screened by the antioxidant activity by using the DPPH method.

**Key words:** 2- methyl benzimidazole, o- phenyldiamine, antioxidant activity, DPPH method.

**1. INTRODUCTION**

Benzimidazole is an important heterocyclic aromatic organic compound having important pharmacophore and a privileged structure in medicinal chemistry. It is a Bicyclic in nature which consists of an imidazole ring containing two nitrogen atom at adjacent position fused to benzene ring<sup>1,2,3</sup>.



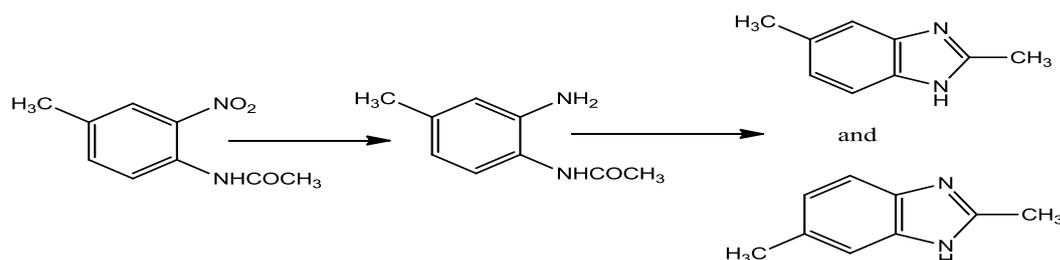
**Figure 1: Structure of Benzimidazole ring**

Benzimidazole derivatives is used in different ways such as analgesic<sup>4,5,6</sup>, anti-inflammatory<sup>5,6,7, 8</sup>, antibacterial<sup>9</sup>, antifungal<sup>10</sup>, antiviral<sup>11,12</sup>, anti-helmenthic<sup>13</sup>, anticonvulsant<sup>14,15</sup>, anticancer<sup>16,17</sup>, antiulcer<sup>18</sup> antihypertensive<sup>19</sup>. Firstly benzimidazole was

synthesised by Hoebrecker in 1872, who obtained 2,5(or 2,6)-dimethylbenzimidazole by the using of 2-nitro-4-methylacetanilide<sup>20,21</sup>.

**2. MATERIALS AND METHOD****2.1 Materials**

The FT-IR spectroscopy of samples was carried out FT-IR Spectrometer in the 400- 4000 cm<sup>-1</sup> region. Melting points were recorded in a hot stage melting point apparatus. All the reactions and the purity of products were monitored using thin- layer chromatography (TLC) on aluminium backed plates coated silica gel, with hexane-ethyl acetate mixture & chloroform- ethyl acetate mixture, visualizing the spots under ultraviolet light and iodine chamber. All the chemicals were taken sigma Aldrich company.



**Figure 2: Synthesis of 2, 5 (or 2,6)-dimethylbenzimidazole**



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