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<p>(51) International classification :C08J0005180000, C07D0235180000, A61K0009000000, C07D0235320000, C07D0403060000</p> <p>(86) International Application No :NA</p> <p>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA</p> <p>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA</p> <p>Filing Date :NA</p>	<p>(71) Name of Applicant :  <b>1)Ms. Chaya Rani</b>  Address of Applicant :Assistant Professor, Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>2)Ms. Ramandeep Kaur</b>  <b>3)Dr. Navneet Verma</b>  <b>4)Dr. Sushil Kumar</b>  <b>5)Dr. Arun K Mishra</b>  <b>6)Dr. Harpreet Singh</b>  <b>7)Dr. Arvind Kumar</b>  <b>8)Dr. Gayyurul Islam</b>  <b>9)Mr. Amit Kumar</b>  Name of Applicant : NA  Address of Applicant : NA  (72) Name of Inventor :  <b>1)Ms. Chaya Rani</b>  Address of Applicant :Assistant Professor, Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>2)Ms. Ramandeep Kaur</b>  Address of Applicant :Assistant Professor, Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>3)Dr. Navneet Verma</b>  Address of Applicant :Professor, Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>4)Dr. Sushil Kumar</b>  Address of Applicant :Professor, School of Pharmaceutical sciences, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>5)Dr. Arun K Mishra</b>  Address of Applicant :Professor, SOS School of Pharmacy, IFTM University, Delhi Road, NH-24 Moradabad, Lodhipur Rajput, Uttar Pradesh 244102 -----  <b>6)Dr. Harpreet Singh</b>  Address of Applicant :Professor, School of Pharmaceutical sciences, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>7)Dr. Arvind Kumar</b>  Address of Applicant :Associate Professor, School of Pharmaceutical sciences, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>8)Dr. Gayyurul Islam</b>  Address of Applicant :Professor, Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----  <b>9)Mr. Amit Kumar</b>  Address of Applicant :Assistant Professor, MIT College of Pharmacy, MIT Campus, (Affiliated to Dr. A.P.J. Abdul Kalam Technical University), Ram Ganga Vihar Phase-II, Moradabad, Uttar Pradesh, 244001 -----</p>
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(57) Abstract :

The present invention relates to the synthesis and characterization of novel benzimidazole derivatives exhibiting potent antifungal activity. The derivatives are synthesized by reacting o-phenylenediamine with organic acids, such as 3,5-dinitrosalicylic acid or adipic acid, in an acidic medium under reflux conditions. The process is optimized by introducing catalytic amounts of potassium ferrocyanide for improved yields. The synthesized compounds, including 4-(2,3-dihydro-1H-benzo[d]imidazole-2-yl)-2,5-dinitrophenol and 3-(2,3-dihydro-1H-benzo[d]imidazole-2-yl)phenol, are characterized using IR, 1H NMR, and mass spectrometry to confirm their structure and purity. These derivatives exhibit excellent solubility in ethanol or water and show significant antifungal properties, as demonstrated through biological assays. The invention addresses the limitations of existing antifungal agents, offering a novel, efficient, and scalable synthetic method for developing effective antifungal compounds suitable for medical and agricultural applications.

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