December 31, 2024

Press Release

GOI Patent for JMI faculty's pioneering research on AI and Digital Pathology for Oral Cancer Diagnosis

In a landmark achievement, the Government of India has recently awarded Patent No. **556810** to Jamia Millia Islamia (JMI) scholars Dr. Tanveer Ahmad, an Assistant Professor, and his PhD student, Miss Nisha Chaudhary, from the Multidisciplinary Centre for Advanced Research & Studies (MCARS) at JMI. The patent granted on December 24, 2024, recognises their pioneering invention titled "**A SYSTEM AND METHOD FOR GENOMIC MARKERS AND DIGITAL PATHOLOGY IMAGE-BASED PREDICTION OF ORAL MALIGNANT DISORDERS.**" Their innovative methodology, developed in collaboration with partners, leverages artificial intelligence (AI) and digital pathology to enhance the diagnosis and prediction of oral cancer.

This advanced system can study tissue images to identify if they are linked to oral submucous fibrosis (OSMF), oral leukoplakia (OLL), oral lichen planus (OLP), or oral squamous cell carcinoma (OSCC). For OSCC, it can also determine how severe the cancer is—well-differentiated, moderately differentiated, or poorly differentiated—using AI technology. The system predicts the chances of OSMF or OLP/OLL developing into OSCC, giving doctors helpful information about risks. By using genetic markers and digital tools, it provides clear treatment insights and lowers diagnostic costs compared to traditional methods. This invention is set to transform oral cancer detection by making it more affordable and accurate.

In addition to the patent, the research team has recently achieved another significant milestone with their publication in *Scientific Data*, a high impact factor (9.8) journal from the *Nature Publishing Group*. Their paper, "High-resolution AI image dataset for diagnosing oral submucous fibrosis and squamous cell carcinoma," highlights the dataset underpinning their innovation, offering a valuable resource for researchers worldwide.

This accomplishment is shared with distinguished collaborators, including Dr. Akhilanand Chaurasia, Dr. Arpita Rai, Dr. Deepika Mishra, and Dr. Charbel Darido, whose contributions have been pivotal.

Together, these achievements have significant implications for medical treatment, underscoring the transformative potential of AI-driven solutions in digital pathology and oral cancer research, marking a significant leap toward improved diagnostic and prognostic outcomes.

Professor Mohammad Husain, Director of MCARS at JMI, congratulated all who were part of the study and expressed pride in the achievement.

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Miss Nisha Chaudhary & Dr. Tanveer Ahmad