

Name of E-YUVA center

Title of the project: Paper-Based Sensors as Potential Diagnostic Tool for Air Quality Index (AQI) and its possible application as preventive masks for Asthmatics

Start Date of Project: 1/12/2022

End Date of project: 31/12/2024

Scope of Project: The future of curcumin nanoparticles-mediated paper-based air quality sensors is promising. Enhancing sensitivity and specificity, integrating with IoT and smart city infrastructure, and developing portable versions could make air quality data more accessible to the public. Enhancing software capabilities, including advanced data analytics and machine learning, could further expand the sensor's usability. Collaboration with global environmental organizations, academic institutions, and policymakers can drive large-scale deployment and encourage the adoption of these sensors worldwide, ultimately combating air pollution and safeguarding public health.

Details of New Patent's Filed:

- **Indian patent Application Number:** 202421092432
- **Title of Patent Application:** Curcumin Nanoparticle Mediated Paper-Based Sensors: A Step Towards Sustainable
- **Priority Date:** NA
- **Name of Applicant:** Varsha Vishwakarma
- **Abstract/Description:** Green synthesis has become a promising alternative, utilizing natural resources and biological processes to produce nanoparticles, eliminating the need for harmful substances. Curcumin, a bioactive compounds obtained from turmeric, which possess inherent reducing properties. This research presents a new method for producing curcumin nanoparticles (CNPs) by using curcumin extract as both a reducing and stabilizing agent, aligning with the principles of green chemistry. By harnessing the potential of curcumin, this approach offers a sustainable pathway for nanoparticle synthesis, with widespread implications beyond the laboratory, marking a new phase of environmental friendly advancement in nanotechnology. Thereby developing the paper based sensors incorporated with curcumin nanoparticles to detect the toxic heavy metals present in environment.
- **PCT Application number (if filed):** NA

Details of New IP's (i.e Copyright, Design, Trademark, PPVFRA& GI) Filed:

- **Application Number:** 504/2025-CO/L
- **Title:** Paper-Based Sensors as Potential Diagnostic Tool for Air Quality Index (AQI) and its possible application as preventive masks for Asthmatics.
- **Date of filing:** 06/01/2025
- **Name of Applicant:** Varsha Vishwakarma
- **Description:** The work explores the use of paper-based sensors for monitoring the Air Quality Index (AQI), focusing on the use of curcumin nanoparticle-based sensors due to their non-toxic nature. The sensor, derived from turmeric, outperforms traditional toxic chemicals in detecting mercury in air samples. This work also discusses the potential for large-scale deployment in urban and rural settings, reducing the ecological footprint of air quality monitoring technologies. The use of RGB analysis through MATLAB enhances the accuracy and usability of these sensors, making them a promising solution for environmental monitoring.



Office of the Controller General of Patents, Designs & Trade Marks
Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry,
Government of India

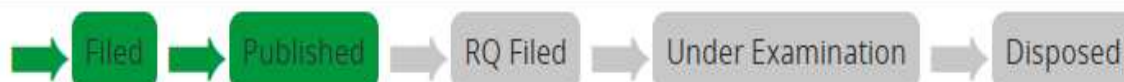


Application Details

APPLICATION NUMBER	202421092432
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	26/11/2024
APPLICANT NAME	Varsha Vishwakarma
TITLE OF INVENTION	"Curcumin Nanoparticle Mediated Paper Based Sensors: A Step Towards Sustainable Remediation"
FIELD OF INVENTION	CHEMICAL
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E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	20/12/2024

Application Status

APPLICATION STATUS	Awaiting Request for Examination
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