

Accepted Manuscript

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PII: S1385-8947(15)00225-9

DOI: <http://dx.doi.org/10.1016/j.cej.2015.02.027>

Reference: CEJ 13280

To appear in: *Chemical Engineering Journal*



Please cite this article as: L. Chandana, P. Manoj Kumar Reddy, Ch. Subrahmanyam, Atmospheric pressure non-thermal plasma jet for the degradation of methylene blue in aqueous medium, *Chemical Engineering Journal* (2015), doi: <http://dx.doi.org/10.1016/j.cej.2015.02.027>

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Atmospheric pressure non-thermal plasma jet for the degradation of methylene blue in aqueous medium

L. Chandana, P. Manoj Kumar Reddy, Ch. Subrahmanyam*

Department of Chemistry, IIT Hyderabad, India.

Abstract

Atmospheric pressure non-thermal plasma jet has been designed and tested for the removal a model aqueous organic pollutant methylene blue. Typical results indicated the best performance of argon plasma jet when compared to plasma jet operated in air and nitrogen gas. The best performance of argon plasma jet is due to the formation of the highest amount of hydrogen peroxide. Addition of iron catalyst improved the performance of the system, probably due to Fenton reaction leading to the formation of hydroxyl radical, a powerful oxidant capable of mineralizing methylene blue.

* Corresponding author: Phone: +91-40-23016050; Fax: +91-40-2301 6032;

E-mail: csubbu@iith.ac.in

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