



## Evaluation of Visible Light Photocatalytic Activities of $\text{MoO}_3$ , $\text{Cu}_2\text{O}$ And $\text{V}_2\text{O}_5$ For Degradation of Rhodamine-B, Methylene Blue And Methyl Orange

T. Narasimha Murthy, P. Suresh, A.M. Umabala and A.V. Prasada Rao\*

Dept. of Inorganic and Analytical Chemistry, Andhra University, Visakhapatnam, **INDIA**

Email: [prasadraoav53@gmail.com](mailto:prasadraoav53@gmail.com)

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### ABSTRACT

*Photocatalytic activities of three binary metal oxides  $\text{MoO}_3$ ,  $\text{Cu}_2\text{O}$  and  $\text{V}_2\text{O}_5$  are evaluated and compared with that of Degusa P25 for the degradation of Rhodamine-B, Methylene blue and Methyl orange in presence of an external oxidant  $\text{H}_2\text{O}_2$ . UVDRS of  $\text{MoO}_3$ ,  $\text{Cu}_2\text{O}$  and  $\text{V}_2\text{O}_5$  indicated band gaps of 2.93 eV, 2.38 eV and 2.08 eV respectively. The enhanced photocatalytic activity due to  $\text{Cu}_2\text{O}$  and  $\text{V}_2\text{O}_5$  as compared to  $\text{MoO}_3$  and  $\text{TiO}_2$  is attributed to their higher visible light absorption efficiency as well as to the presence of  $\text{H}_2\text{O}_2$  which generates more  $\cdot\text{OH}$  radicals that facilitate faster degradation process.*

**Keywords:** Rhodamine-B, Methylene blue, Methyl orange, Photocatalytic degradation.

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