

Fabrication of Zinc Oxide/Alginate (ZnO/Alg) bionanocomposite for the enhanced dye degradation and its optimization study

Vasi Uddin Siddiqui^{1*}, Afzal Ansari¹, M. Taazeem Ansari¹, Md. Khursheed Akram², and Weqar Ahmad Siddiqui^{1*}

¹Department of Applied Sciences and Humanities, Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi-110025, India.

²Applied Sciences and Humanities Section, University Polytechnic, Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi-110025, India.

*Corresponding authors- **Vasi Uddin Siddiqui and Weqar Ahmad Siddiqui**

Mobile phone: +91-9045083437, +91-8800710689

E-mail address: vasi168968@st.jmi.ac.in, wsiddiqui@jmi.ac.in

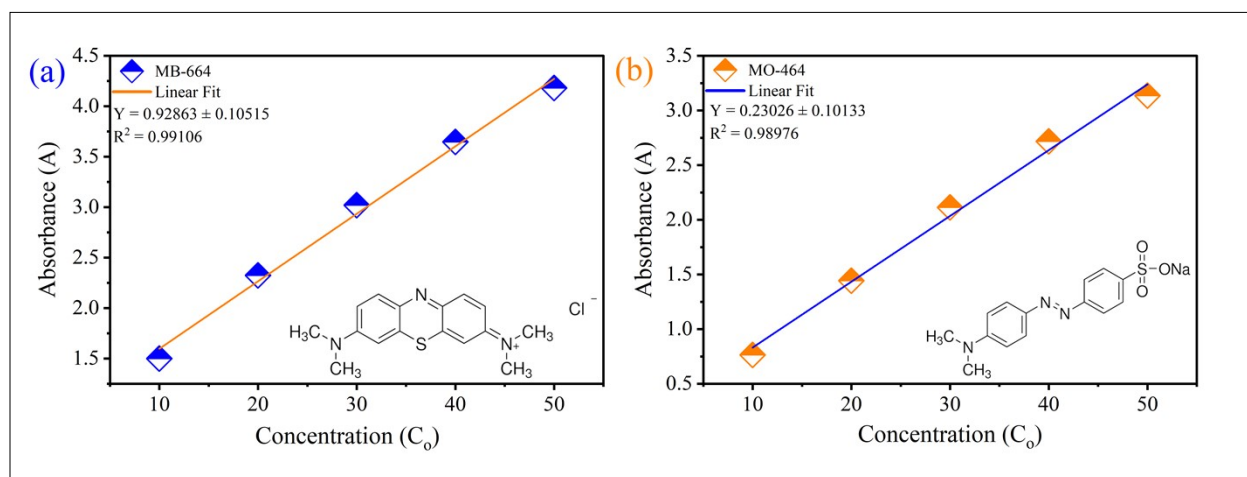


Fig. S1 Calibration curve for (a) MB and (b) MO and their molecular structure.

Table 1. Central composite design (uncoded) for MB and MO degradation (%).

Run	Factor 1 A:Photocatalyst dosage (mg)	Factor 2 B:Dye concentration (mgL ⁻¹)	Factor 3 C:Reaction time (min)	Response 1 MB- Degradation (%)	Response 2 MO- Degradation (%)
1	20.00	32.50	80.00	95.52	88.79
2	10.00	15.00	120.00	75.15	68.15
3	20.00	32.50	80.00	97.53	86.93
4	20.00	32.50	12.72	6.12	1.04
5	30.00	50.00	120.00	95.2	88.2
6	3.18	32.50	80.00	20.88	10.88
7	20.00	3.06	80.00	80.36	74.36
8	10.00	15.00	40.00	25.96	11.96
9	10.00	50.00	40.00	12.27	4.07
10	30.00	50.00	40.00	50.89	34.89
11	20.00	32.50	80.00	93.79	87.79
12	30.00	15.00	120.00	97.39	85.39
13	30.00	15.00	40.00	40.54	28.54
14	36.81	32.50	80.00	73.36	51.36
15	10.00	50.00	120.00	58.25	56.25
16	20.00	61.93	80.00	70.49	71.49
17	20.00	32.50	147.27	97.81	87.81