Supporting information

Heteroarchitectured Ag-Bi_2O_3-ZnO as a bifunctional nanomaterial

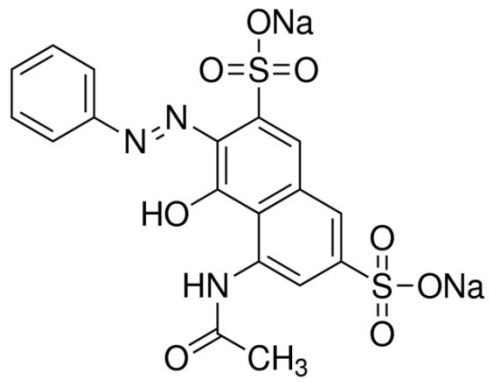
Subramanian Balachandran,[a,d] Natarajan Prakash[b] and Meenakshisundaram Swaminathan[c]*

[a]Department of Chemistry, Annamalai University, Annamalainagar– 608 002, India

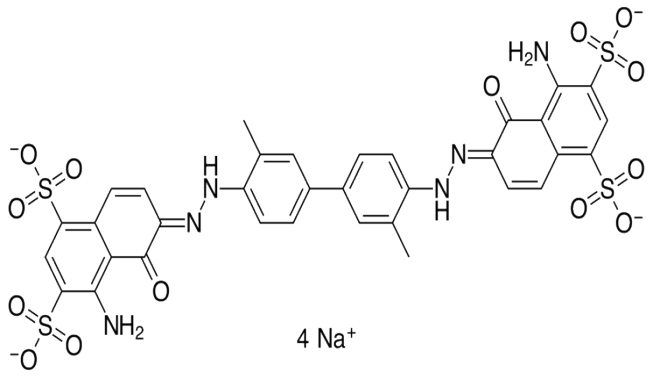
[b]Graduate School of Science and Technology, Shizuoka University, 3-5-1 Johoku, Naka-ku, Hamamatsu 432-8011, Japan

[c]Nanomaterials Laboratory, International Research Centre, Kalasalingam University, Krishnankoil- 626126, Tamil Nadu, India

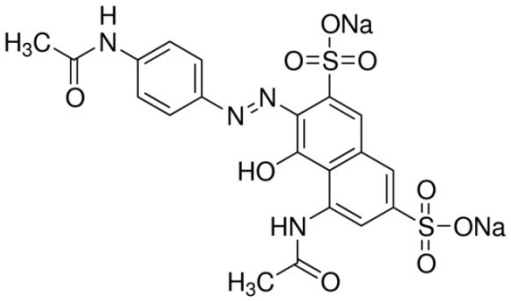
[d]Beijing National Laboratory for Molecular Sciences, Key Laboratory of Engineering Plastics, Institute of Chemistry, Chinese Academy of Sciences, Zhongguancun North First Street 2, Beijing 100190, P. R. China



AR 1



EB



AV 7

Fig. S1 Structure of Dye molecules

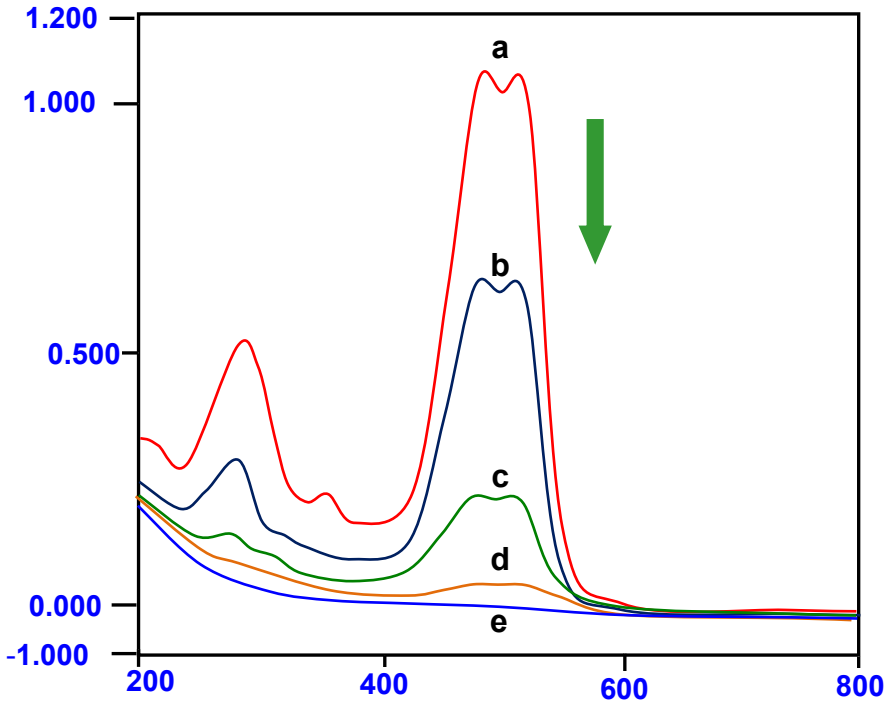


Fig. S2 UV spectral changes of AR 1 dye at different intervals (a) 0 min, (b) 30 min, (c) 60 min, (d) 75 min and (e) 90 min.

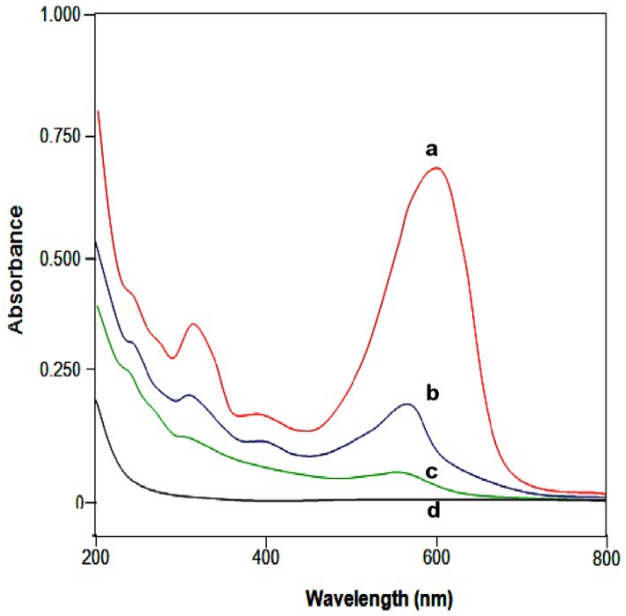


Fig. S3 UV spectral changes of EB dye at different intervals (a) 0 min, (b) 30 min, 60 min and (d) 90 min.

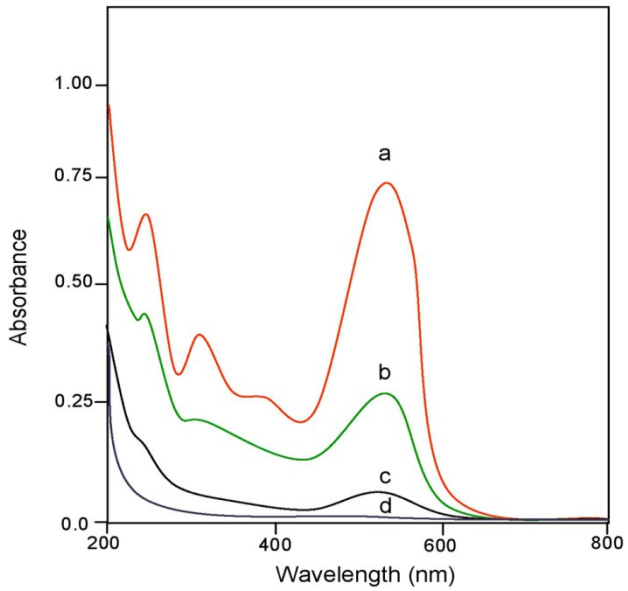


Fig. S4 UV spectral changes of AV 7 dye at different intervals (a) 0 min, (b) 30 min, 60 min and (d) 90 min.

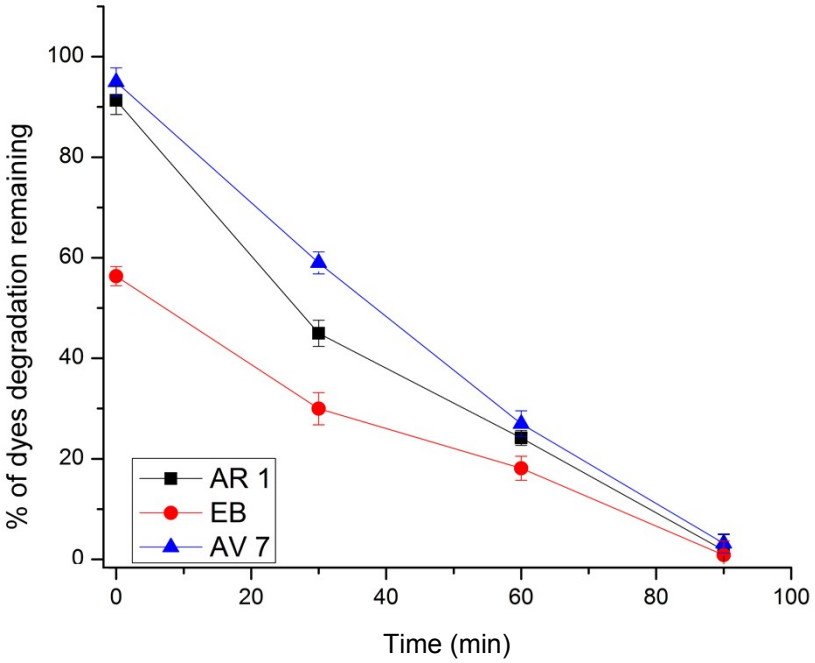


Fig. S5 Primary analysis: AR 1 dye concentration = 5×10^{-4} M, catalyst suspended = 4 g L^{-1}, pH = 7, airflow rate = 8.1 mL s^{-1}, I_{solar} = 1250×100Lux ±100, (b) EB dye concentration = 5×10^{-4} M, catalyst suspended 4 g L^{-1}, pH = 7, airflow rate = 8.1 mL s^{-1}, I_{solar} = 1250×100Lux ±100 lx, (c) Primary analysis: AV 7 dye concentration = 5×10^{-4} M, catalyst suspended = 4 g L^{-1}, pH = 11, airflow rate = 8.1 mL s−1, I_{solar} = 1250×100Lux ±100.

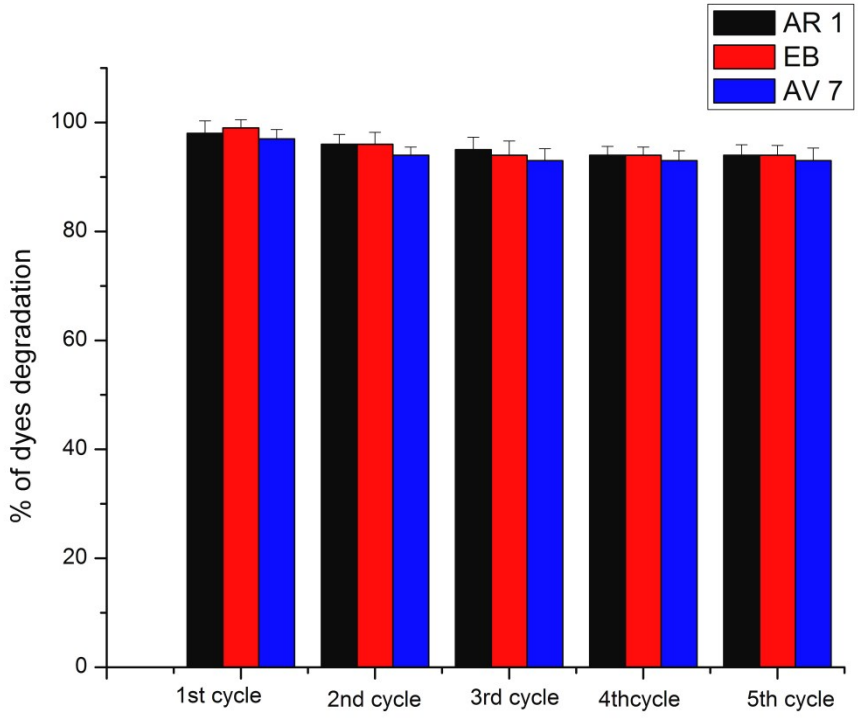


Fig. S6. AR 1 dye concentration = 5 × 10^{-4} M, catalyst suspended = 4 g L^{-1}, airflow rate = 8.1 mL s^{-1}, I_{solar} = 1250×100Lux ±100, (b) EB dye concentration = 5 × 10^{-4} M, catalyst suspended = 4 g L^{-1}, airflow rate = 8.1 mL s^{-1}, I_{solar} = 1250×100Lux ±100 lx, (c) Primary analysis: AV 7 dye concentration = 5 × 10^{-4} M, catalyst suspended = 4 g L^{-1}, airflow rate = 8.1 mL s−1, I_{solar} = 1250×100Lux ±100.

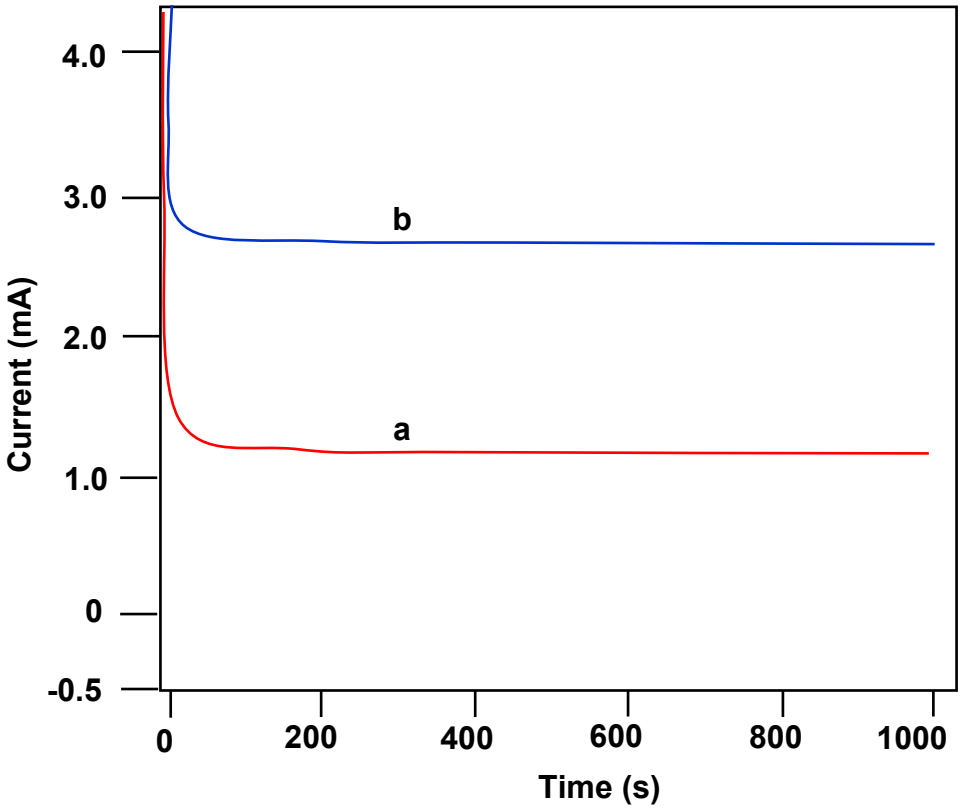


Fig. S7. Chronoamperometry of (a) Prepared ZnO and (b) 9wt% Ag-Bi_2O_3-ZnOin N_2 and saturated 0.5 M NaOH + 0.5 M CH_3OH solution at an operation potential of 0.1 V at 25 °C.