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Supporting information

β-sitosterol-D-glucopyranoside isolated from *Desmostachya bipinnata* mediate photoinduced rapid green synthesis of silver nanoparticles

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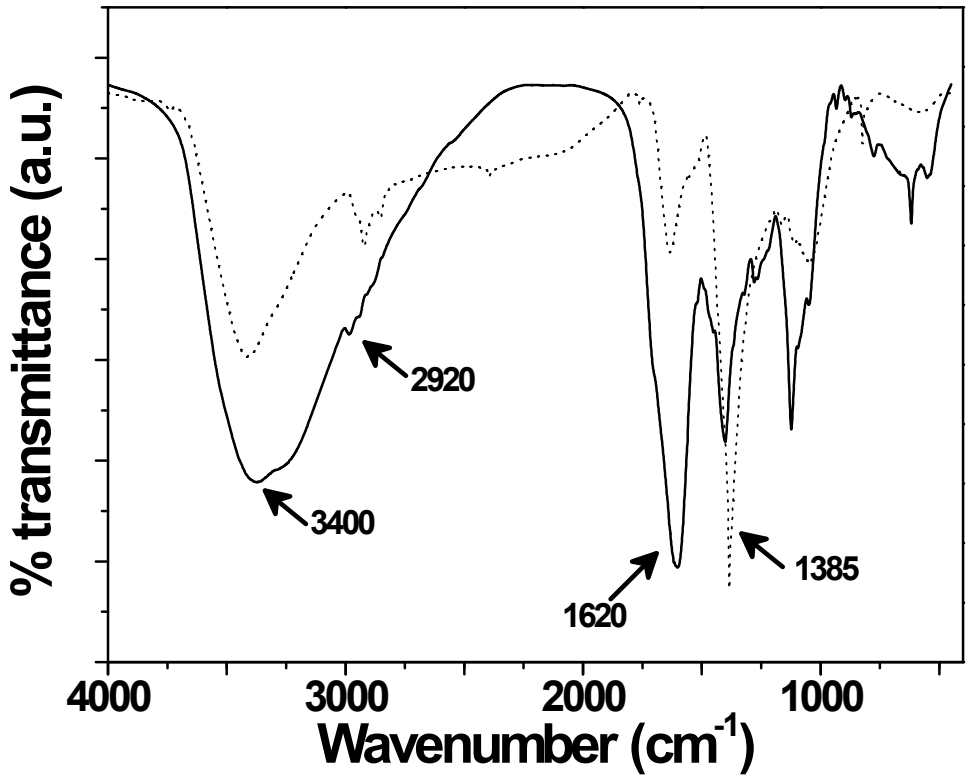

Fig. S1: FTIR spectra of *D. bipinnata* aqueous extract (solid line) and *D. bipinnata* stabilized AgNPs (dotted line). The broad band at 3400 and 2920 cm^{-1} are attributed to –O-H and C-H stretching of the phytoconstituents. The band at 1385 cm^{-1} can be attributed to aliphatic – CH_2 and $–CH_3$ groups or bending modes of O-H bonds. IR peaks corresponds to C-O stretching were observed at 1620 cm^{-1}. As inferred from the FTIR data, all the bands are observed in both *D. bipinnata* aqueous extract and *D. bipinnata* stabilized AgNPs, indicating the presence of phytoconsituents around the nanoparticles.

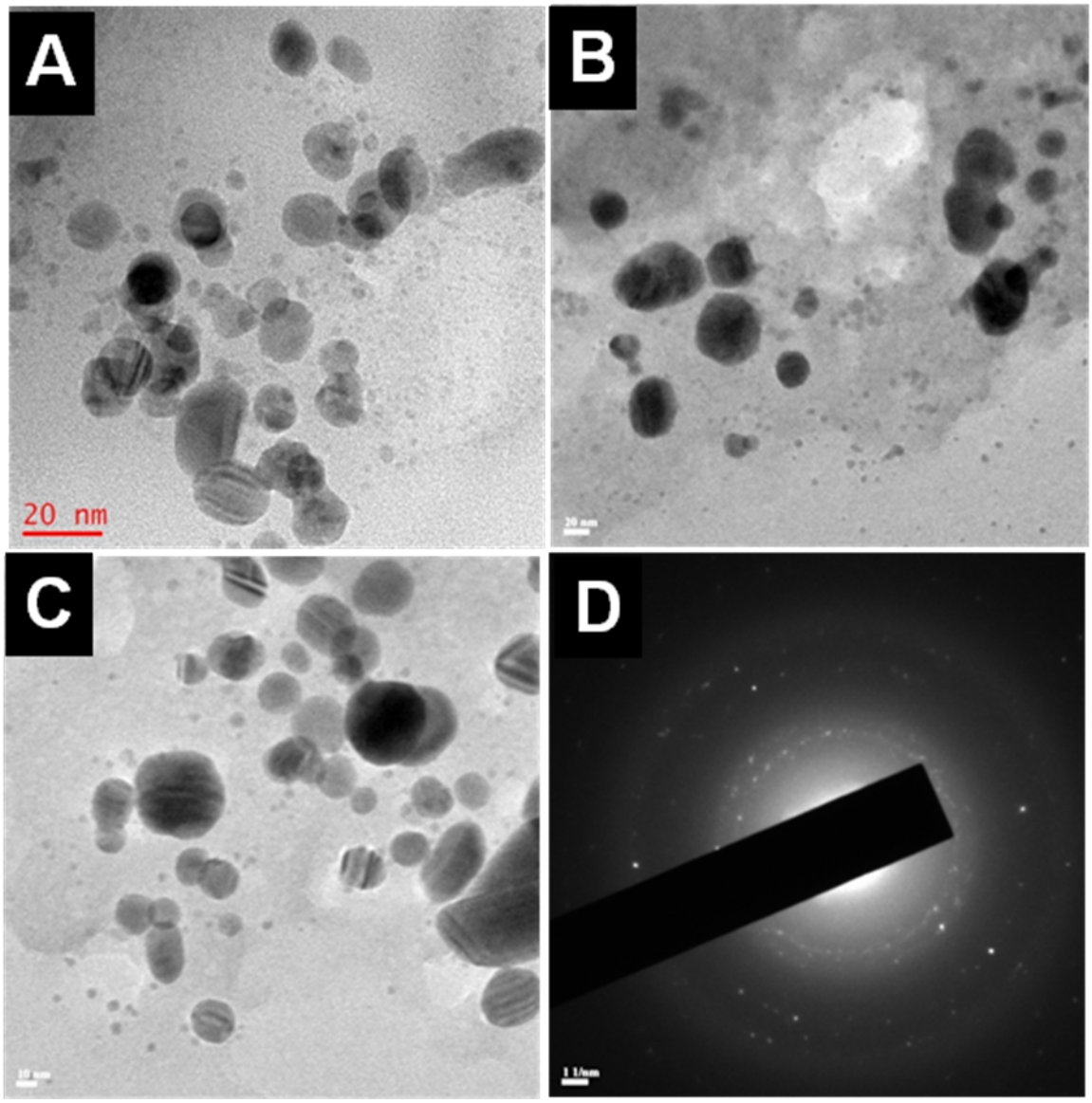

Fig. S2: TEM images of AgNPs prepared using β sitosterol glucoside mediated by (A) sunlight, (B) room light, (C) UV light and (D) SAED pattern.

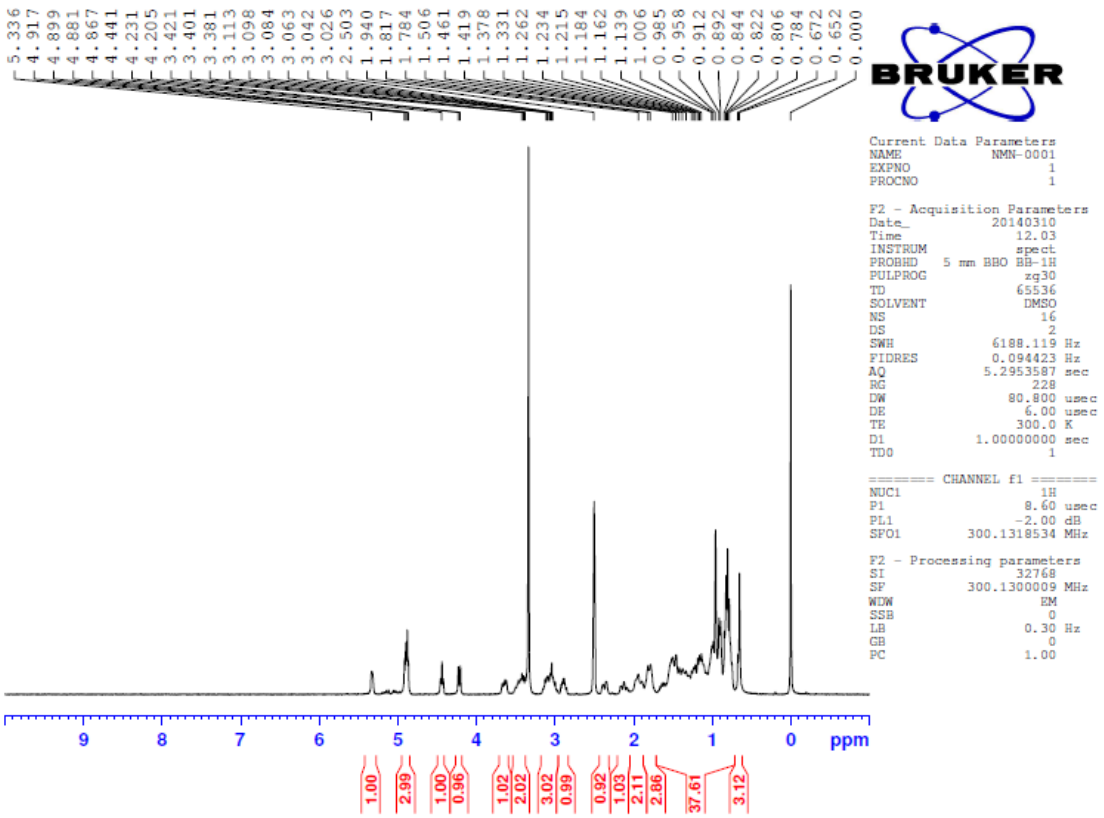

Fig. S3: ^{1}H NMR of BS isolated from *D.bipinnata*

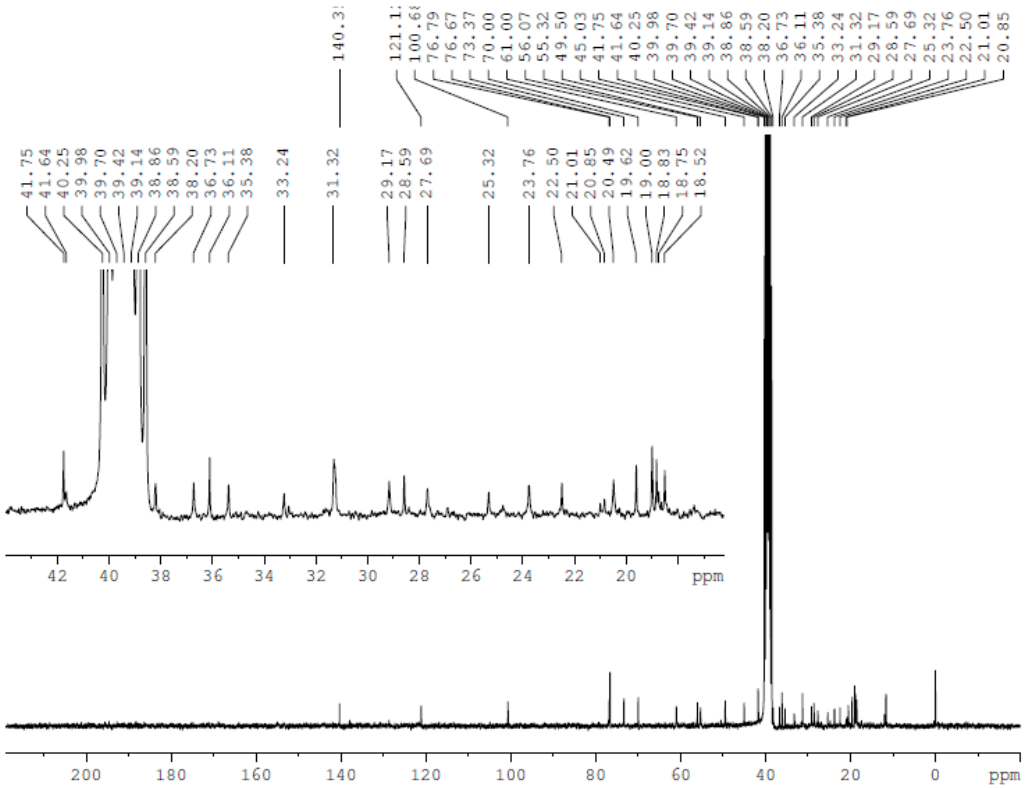

Fig. S4: ^{13}C NMR of BS isolated from *D.bipinnata*

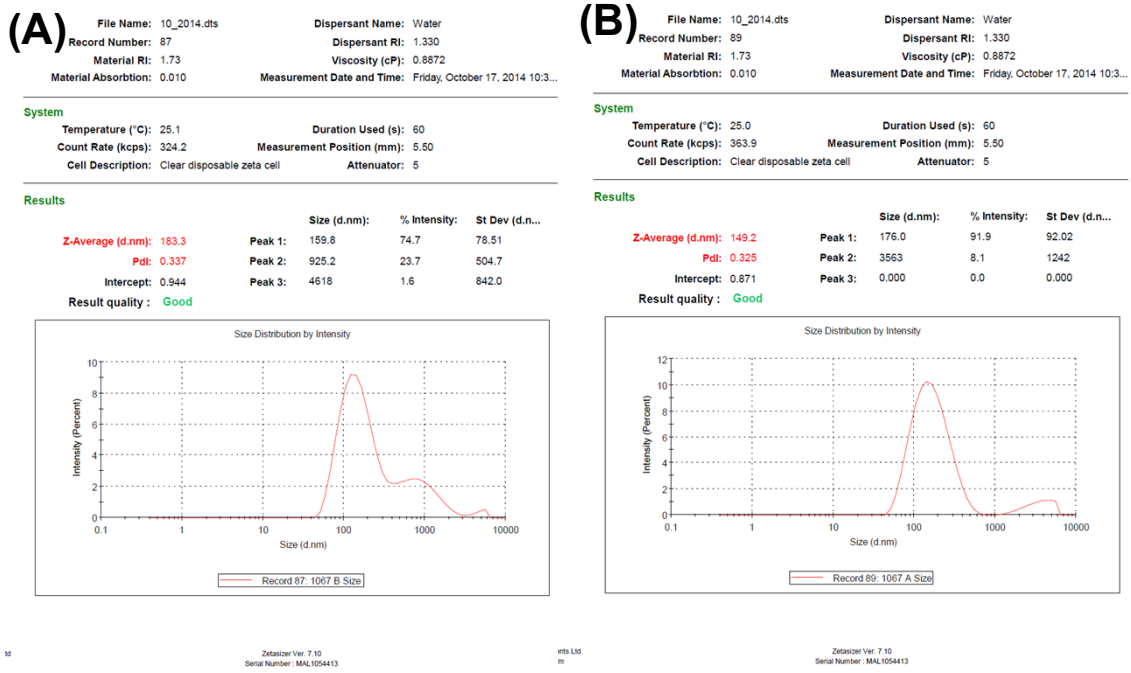

Fig. S5: Particle size analysis. (A) *D. bipinnata* stabilized AgNPs and (B) β-sitosterol stabilized AgNPs

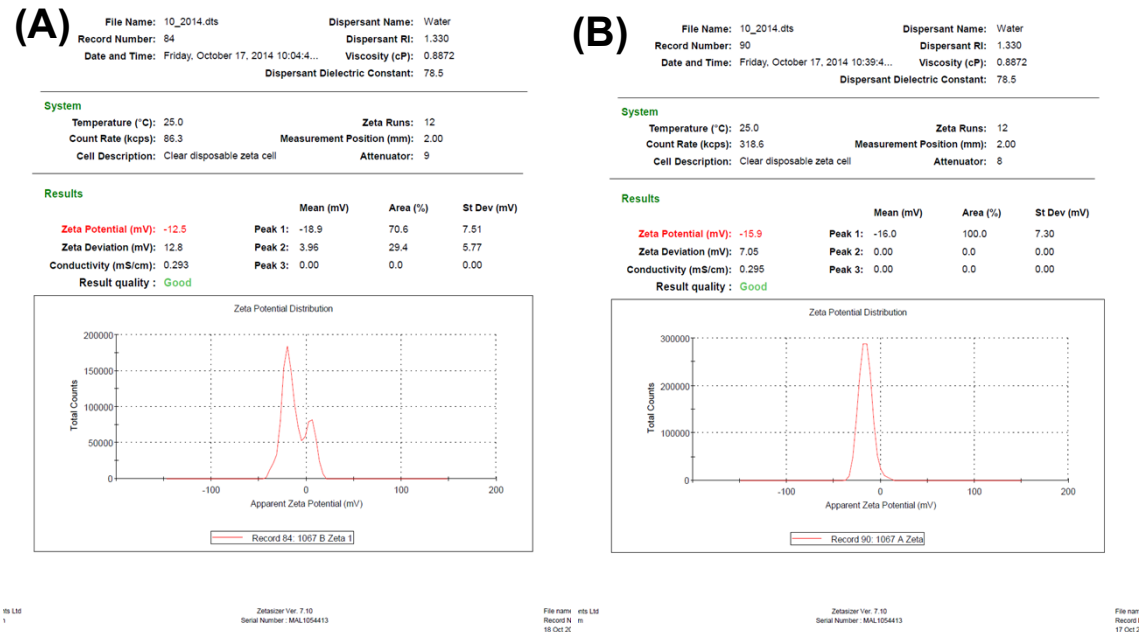

Fig. S6: Zeta potential of (A) *D. bipinnata* stabilized AgNPs and (B) β-sitosterol stabilized AgNPs

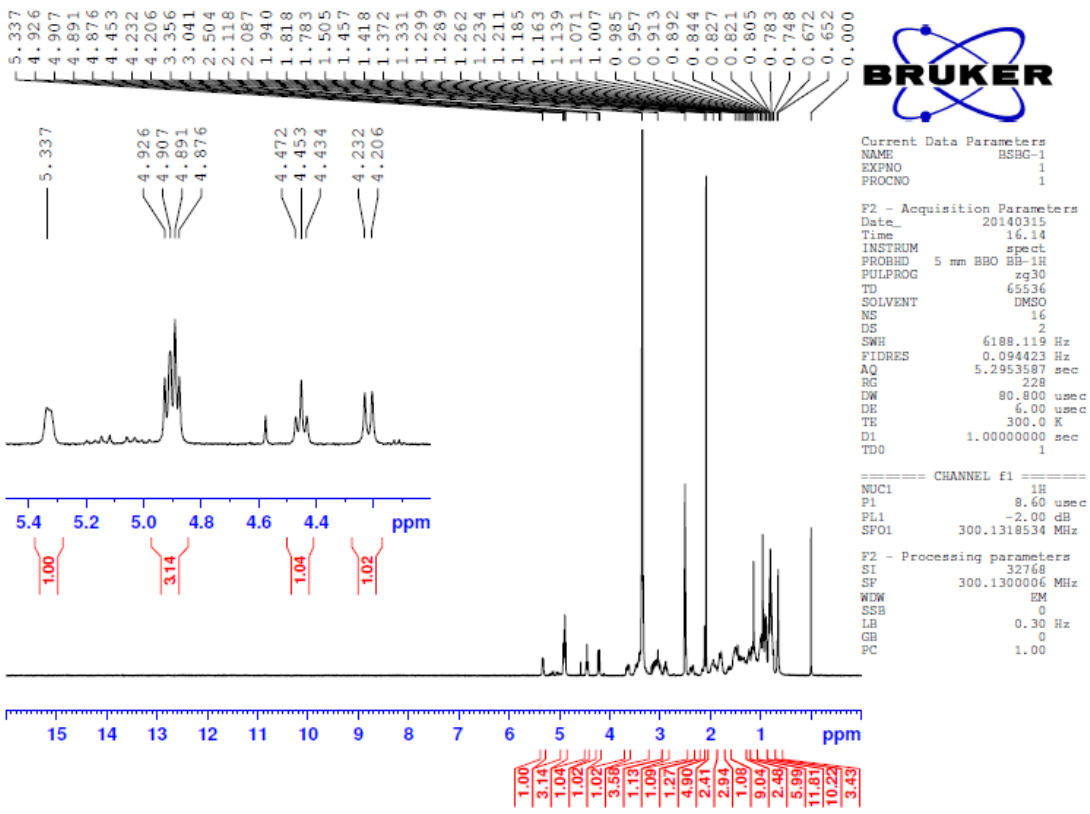

Fig. S7: ^{1}H NMR of BS after 20 min exposure to sunlight

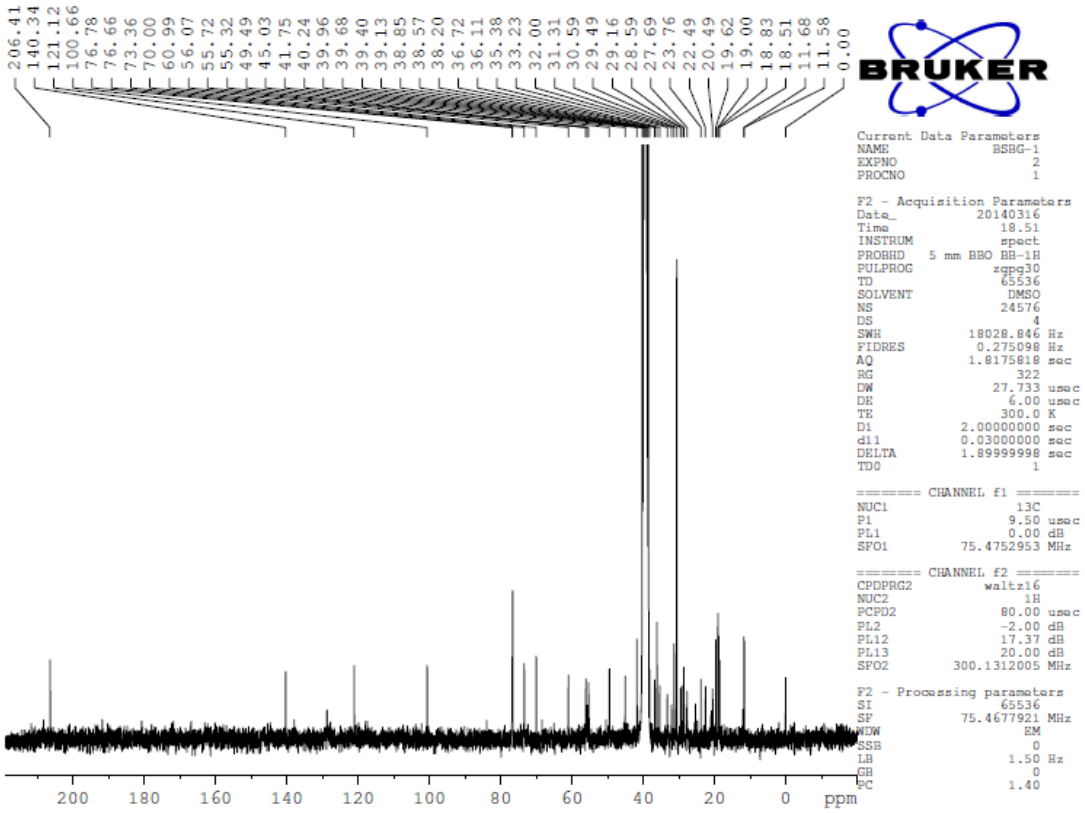

Fig. S8: ^{13}C NMR of BS after 20 min exposure to sunlight

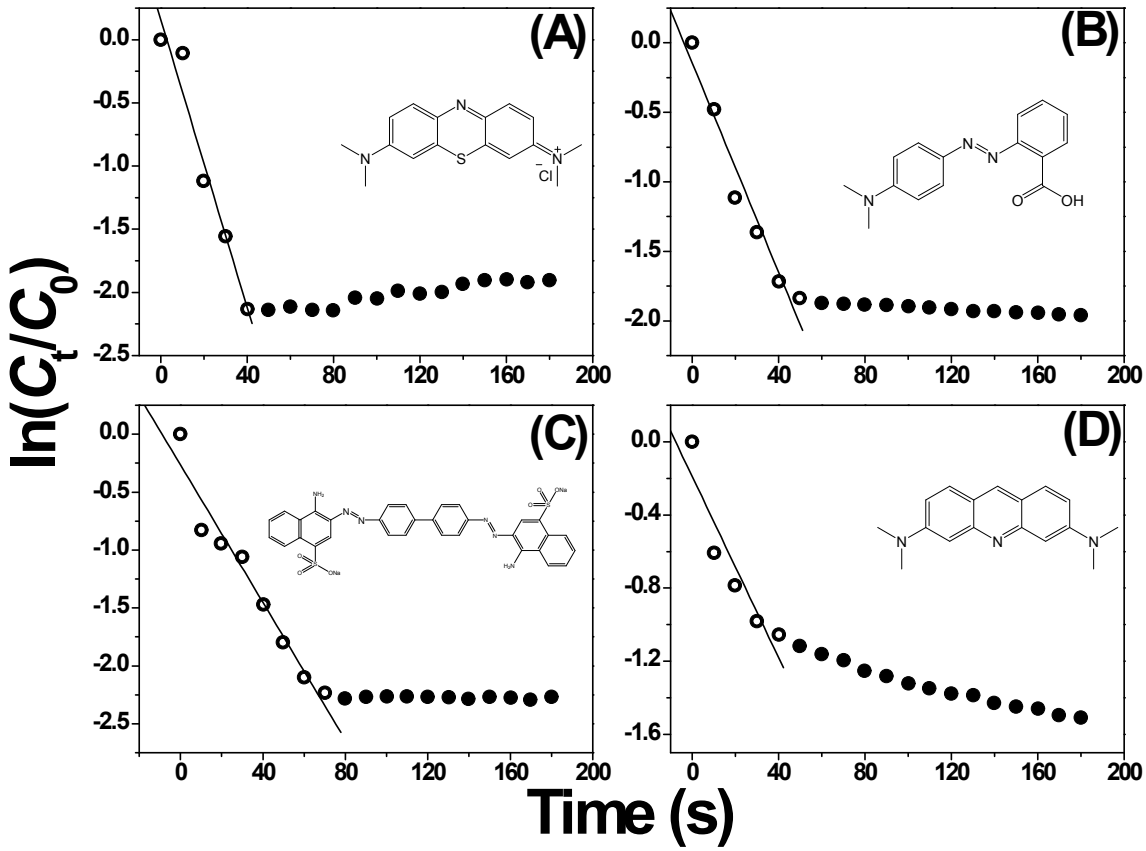

Fig. S9: Rate constant determination for the catalytic degration of (A) Methylene blue, (B) Methyl red, (C) Congo red and (D) Acridine orange. Plot of $\ln(C_t/C_0)$ versus reaction time. C_t/C_0 is calculated based on the absorbance maximum. 15 μM of dye solution were mixed with $NaBH_4$ (50 mM) and 50 μL of AgNPs (1 mM) to initiate the reduction. *Inset* corresponds to the structure of dye.