Supporting Information

Impregnation of ZnO onto a Vegetal Activated Carbon from Algerian olive waste: A sustainable photocatalyst for degradation of Ethyl-Violet dye

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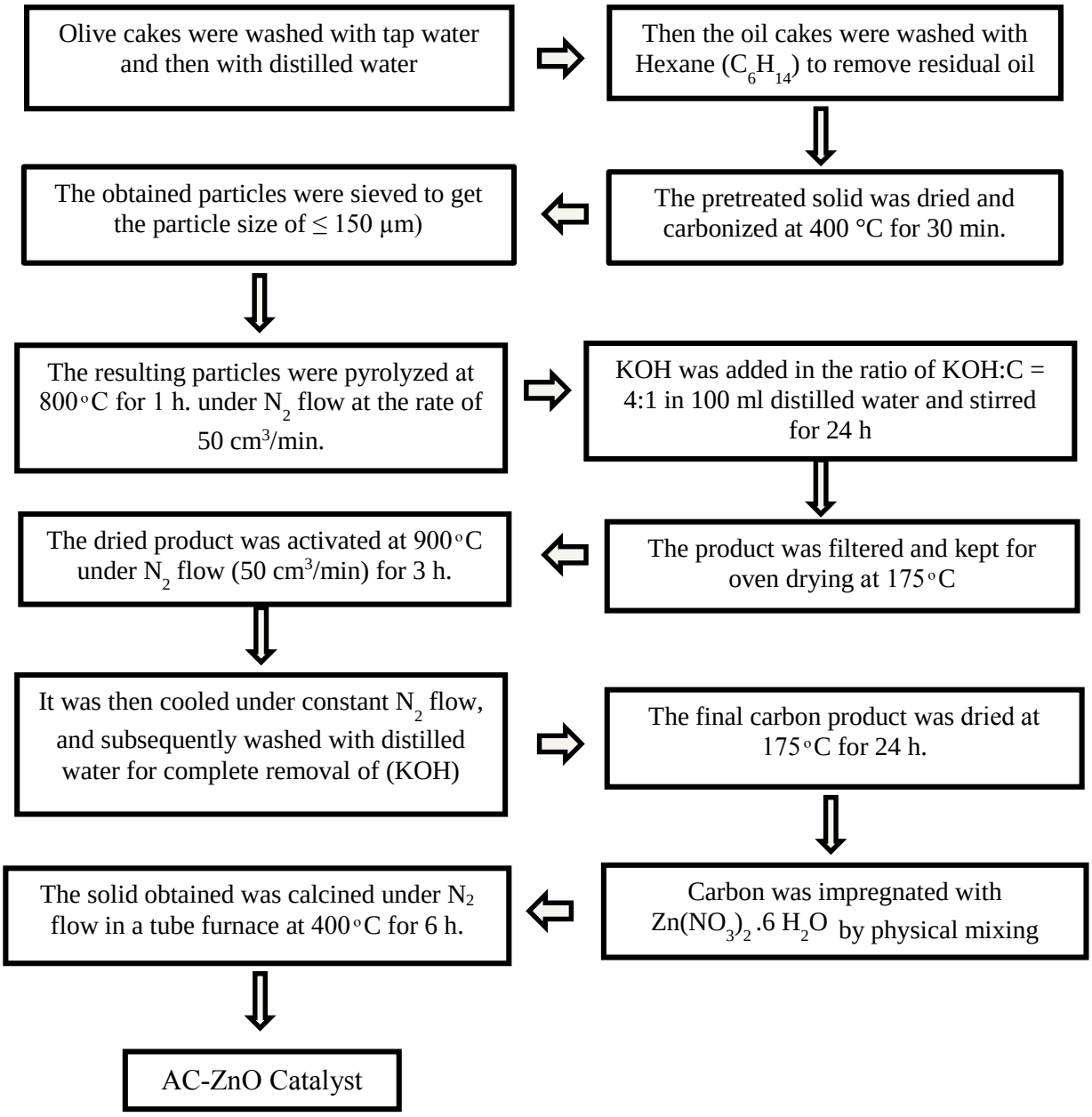


$$2\ Zn(NO_3)_2\ .\ 6\ H_2O \xrightarrow{\Delta} 2\ ZnO(s) + 4\ NO_2(g) + O_2(g) + 6\ H_2O(g)$$

Scheme S1. Different steps involved in the preparation of the catalyst, AC-ZnO.

Table S1. Optimal instrumental conditions for ESI-MS studies.

Parameters	**Optimal values/conditions**
Infusion rate	10 μLmin^{-1}
Spray Shield voltage	600 V
Mode	Positive
Mass range (*m/z*) 50-500	50-500
Capillary voltage 80 V	80 V
Drying gas temperature	400 °C
Nébuliser pressure	10 psi
Needle voltage	5000 V
Detector	Dynode ion detector
Electron multiplier voltage	1360 V

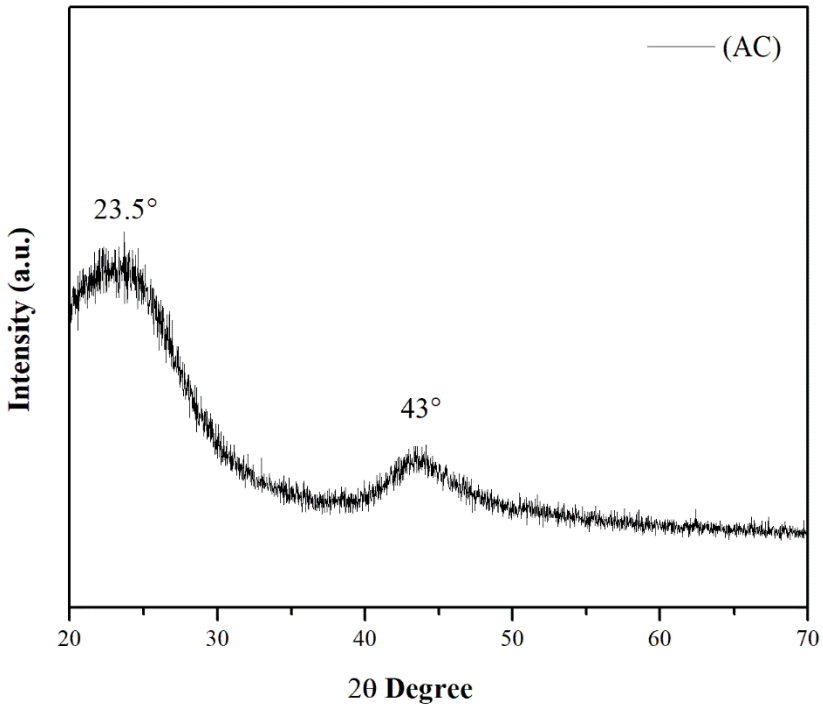


Figure S1. Powder X-ray diffraction patterns of blank activated carbon (AC).

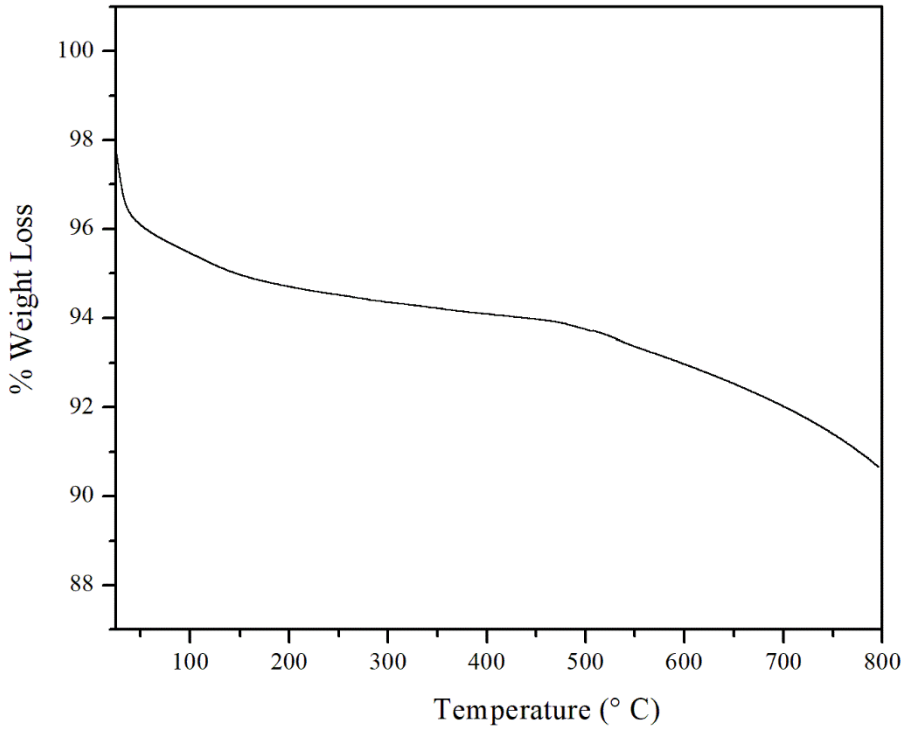


Figure S2. TGA of blank activated carbon (AC).

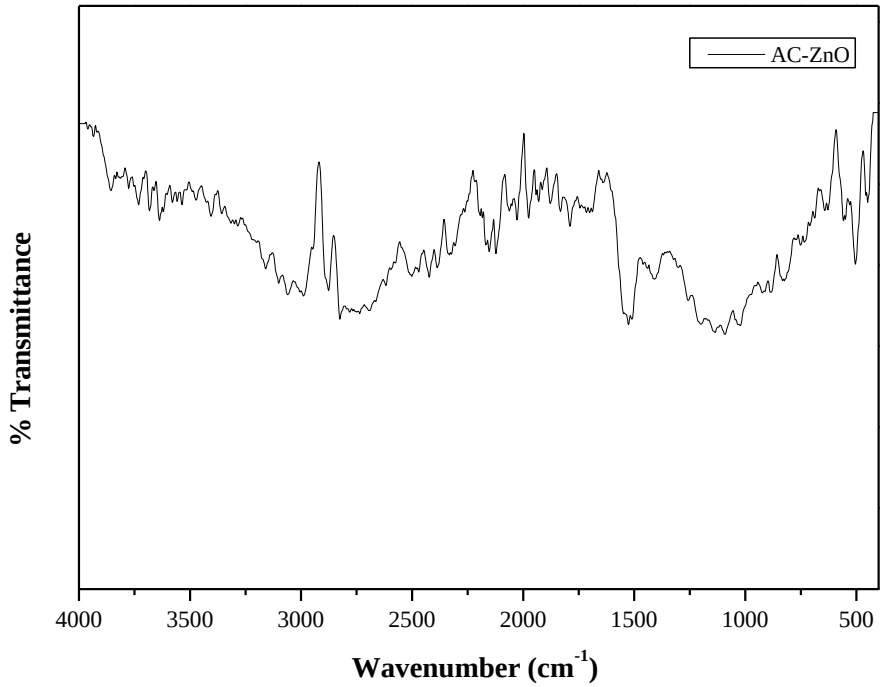


Figure S3. FT-IR spectrum of AC-ZnO.

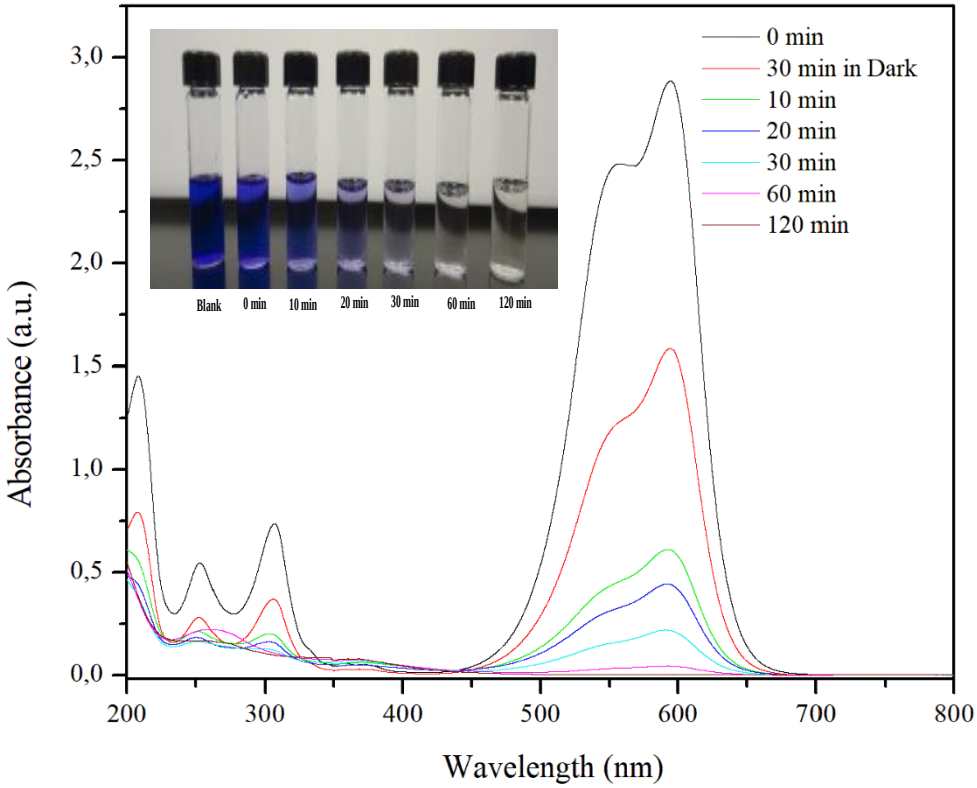
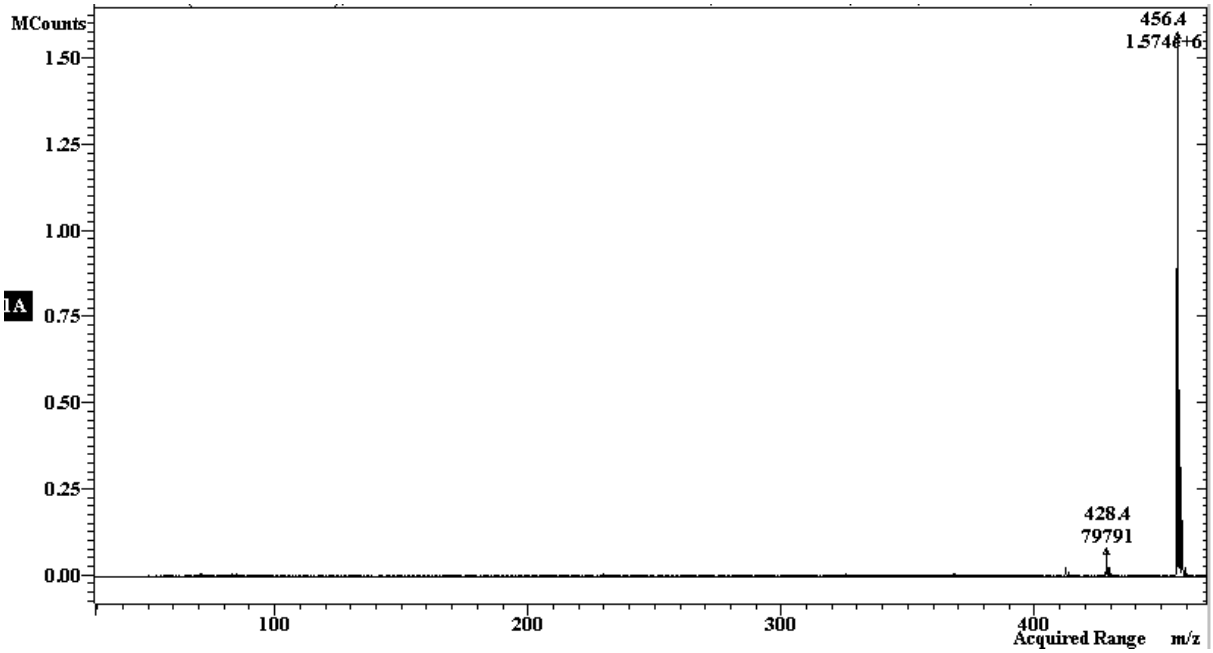
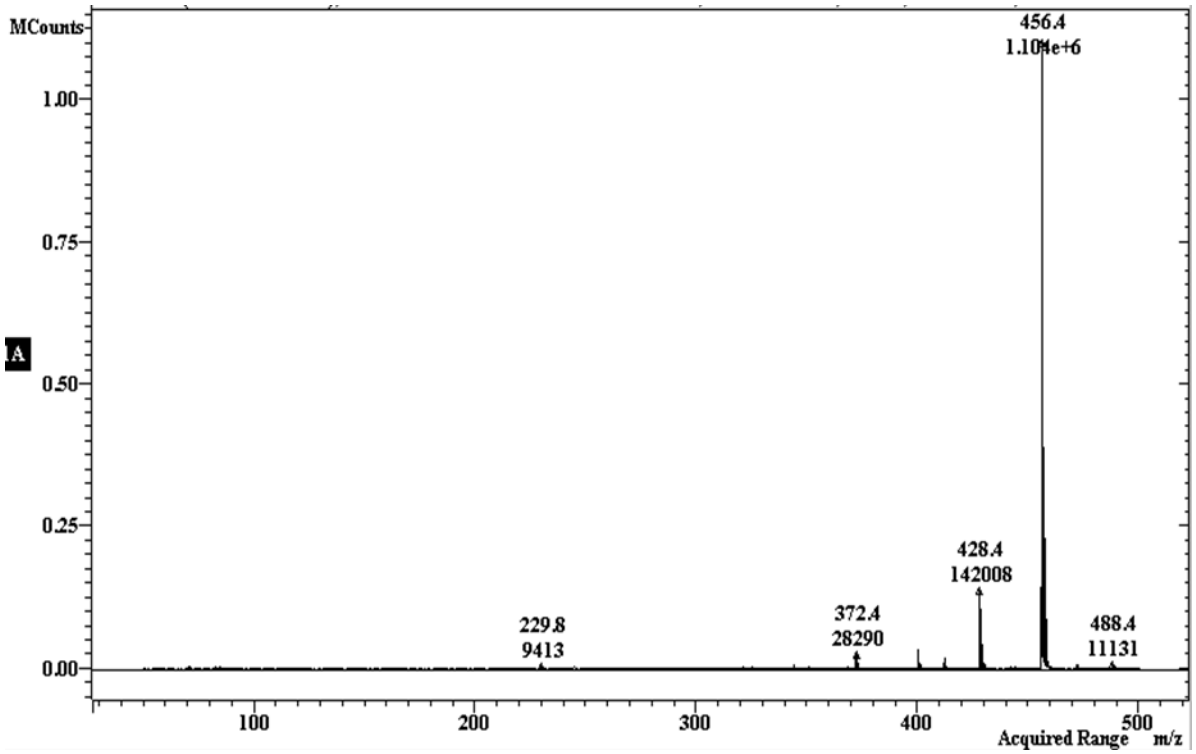


Figure S4. Absorption spectra of EV dye (after filtration) at various time intervals during UV light irradiation for 120 min. using AC-ZnO.

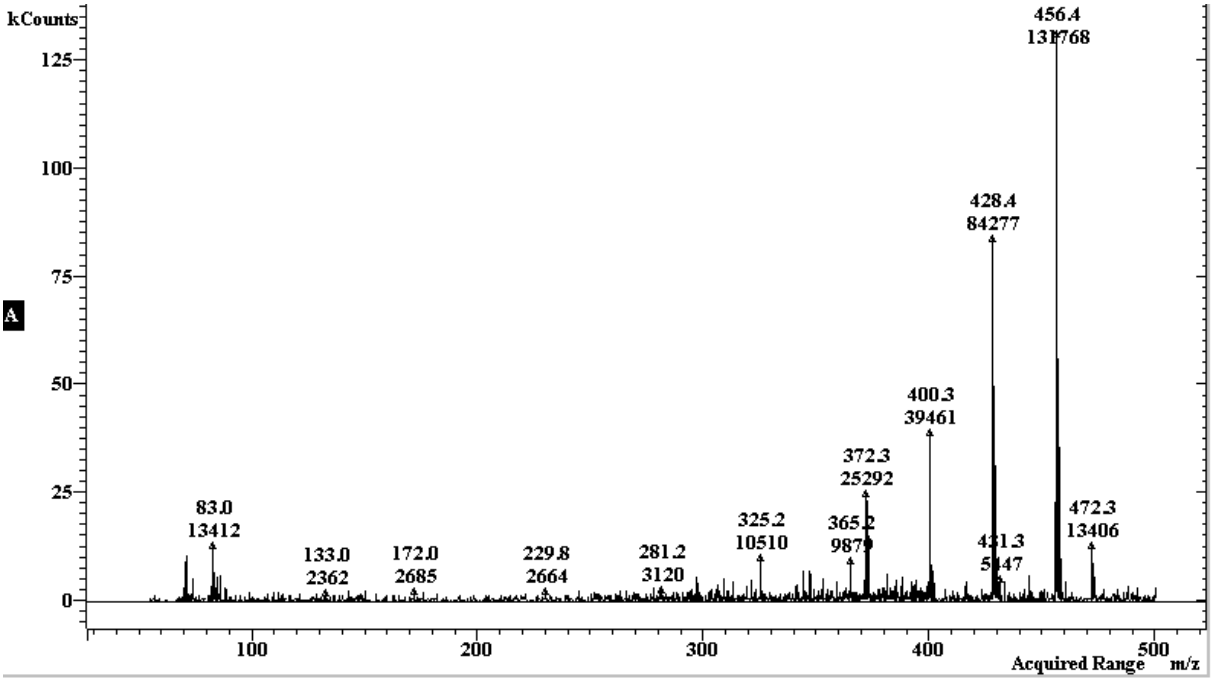
(A) Blank - EV



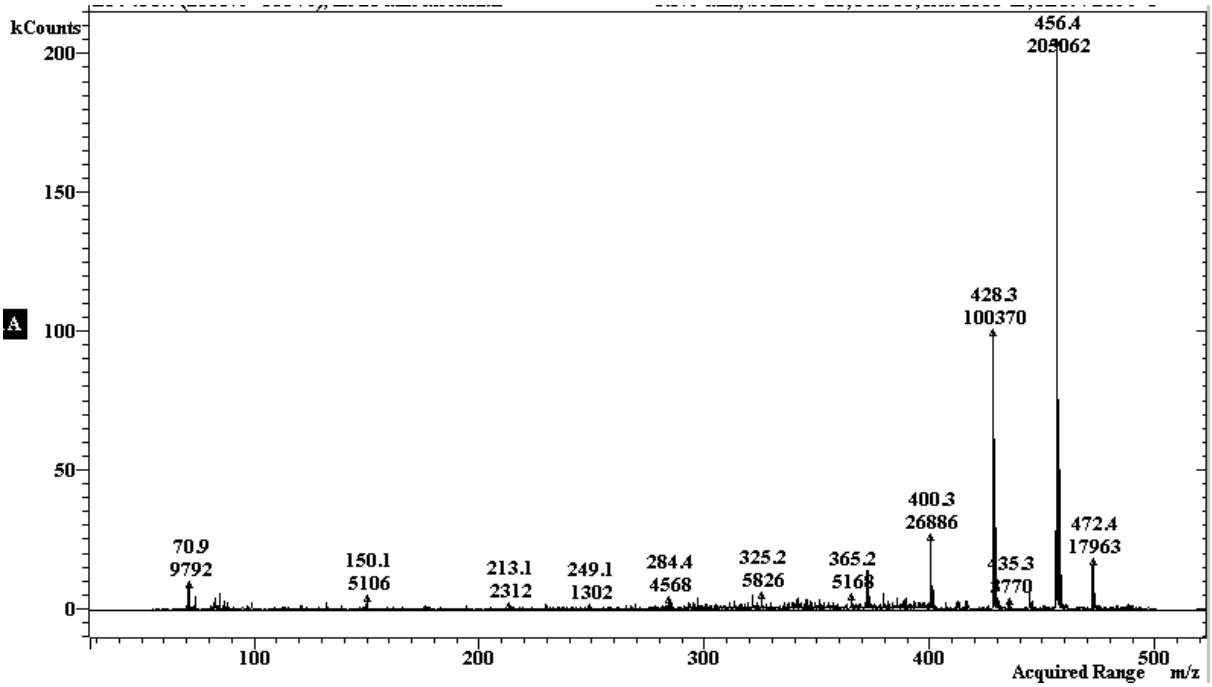
(B) Dark - EV



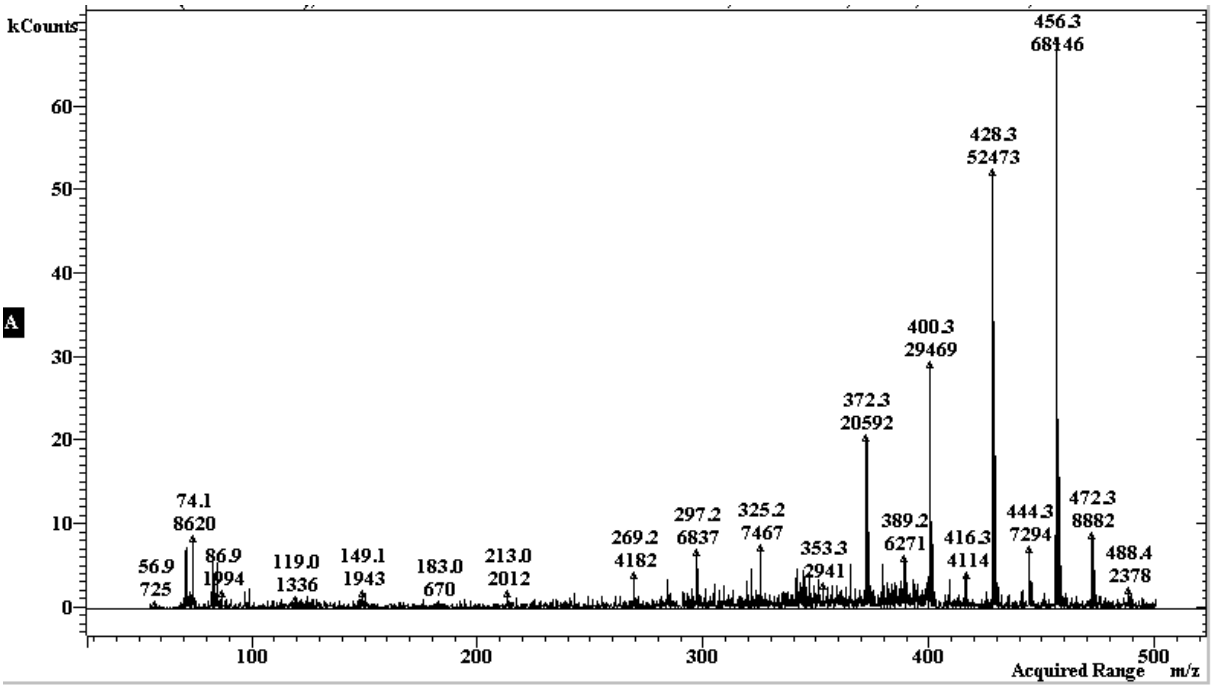
(C) 10 min. (EV)



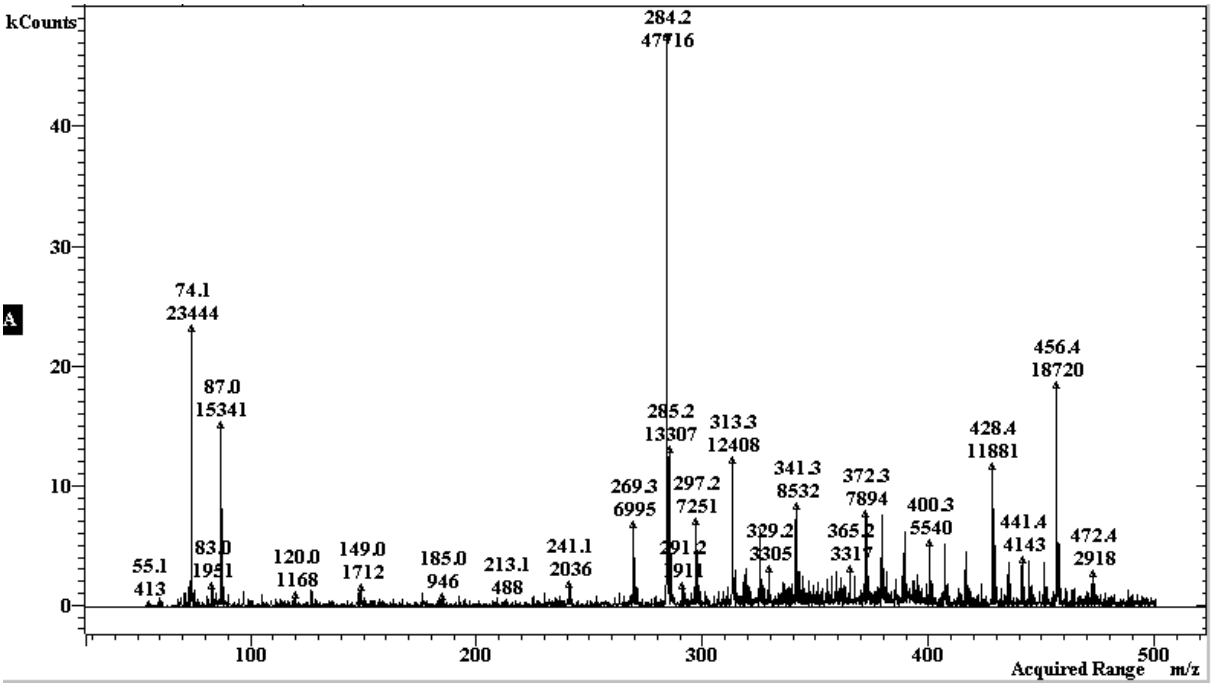
(D) 20 min. (EV)



(E) 30 min. (EV)



(F) 60 min. (EV)



(G)120 min. (EV)

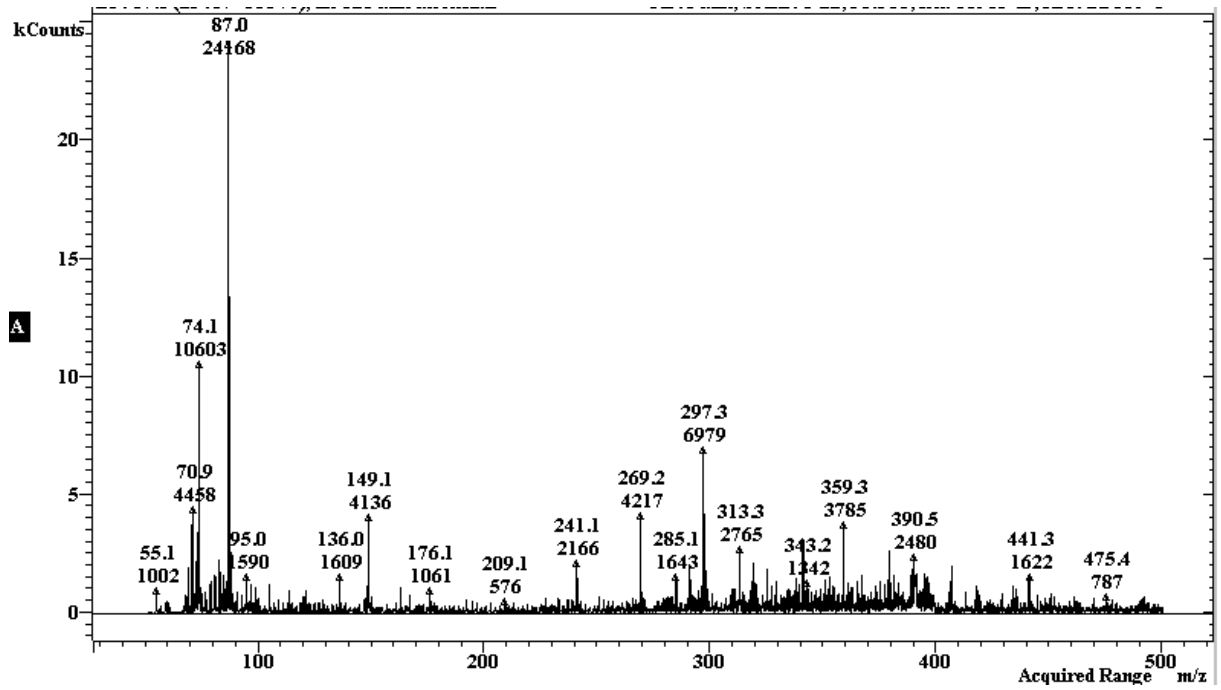


Figure S5. Mass spectrum (MS) of the by-products generated during the degradation of Ethyl Violet by the system (AC-ZnO/UV) at different times.