

## Exploring the biomedical competency of gamma-radiation aided hydroxyapatite and its composite fabricated with nano-cellulose and chitosan

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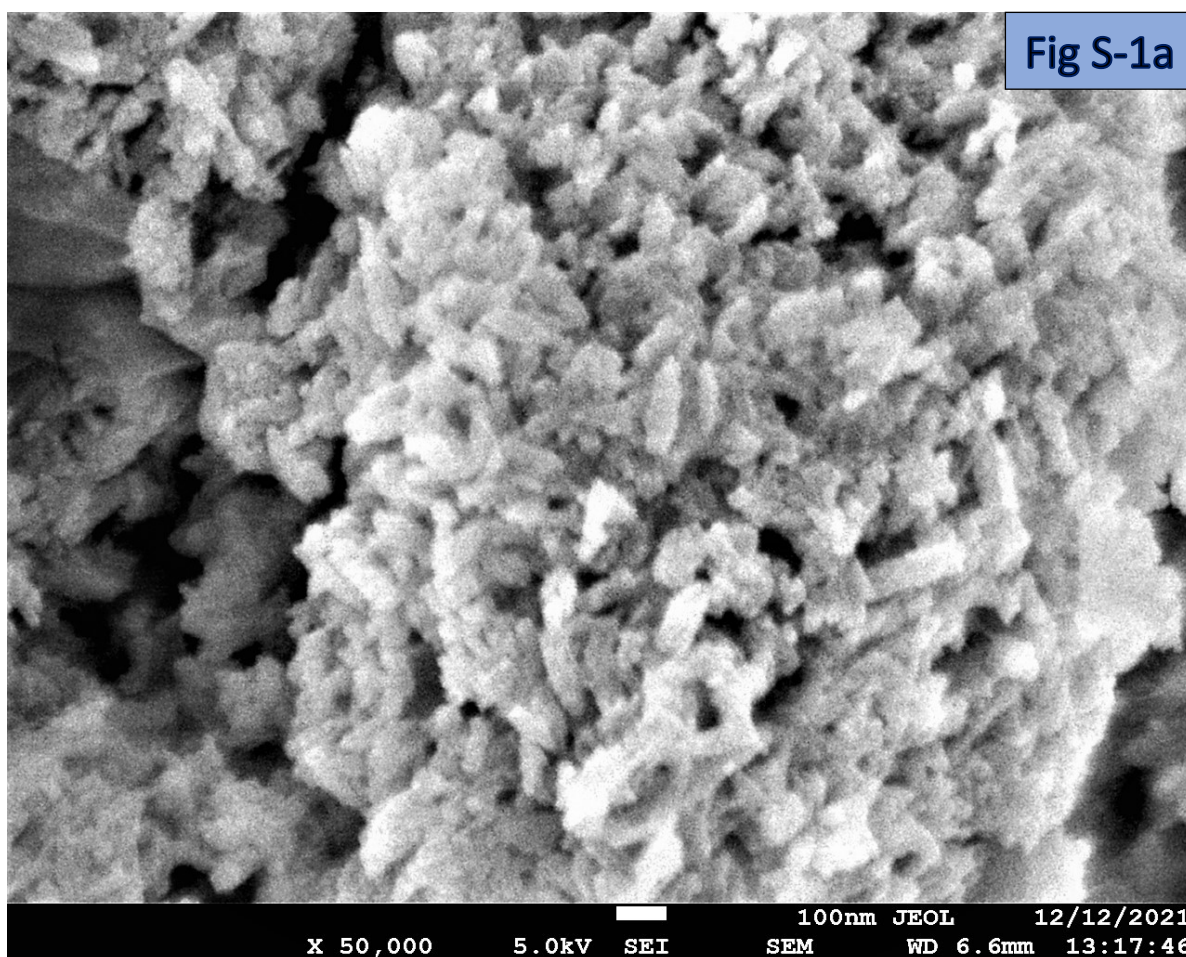


Fig S-1a: FE-SEM image of oven dried Hap but no  $\gamma$ -radiation applied

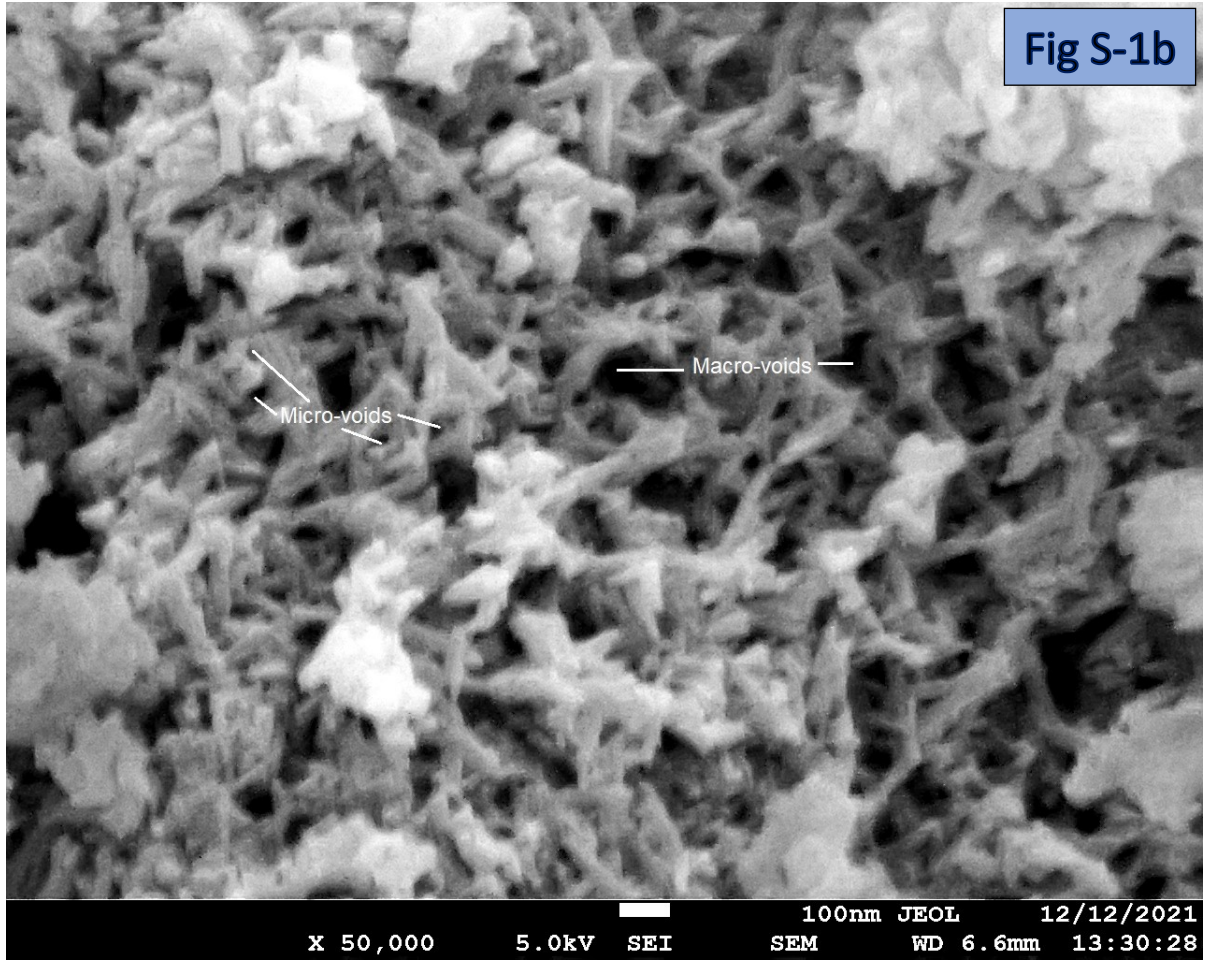


Fig S-1b: FE-SEM image of  $\gamma$ -radiated Hap

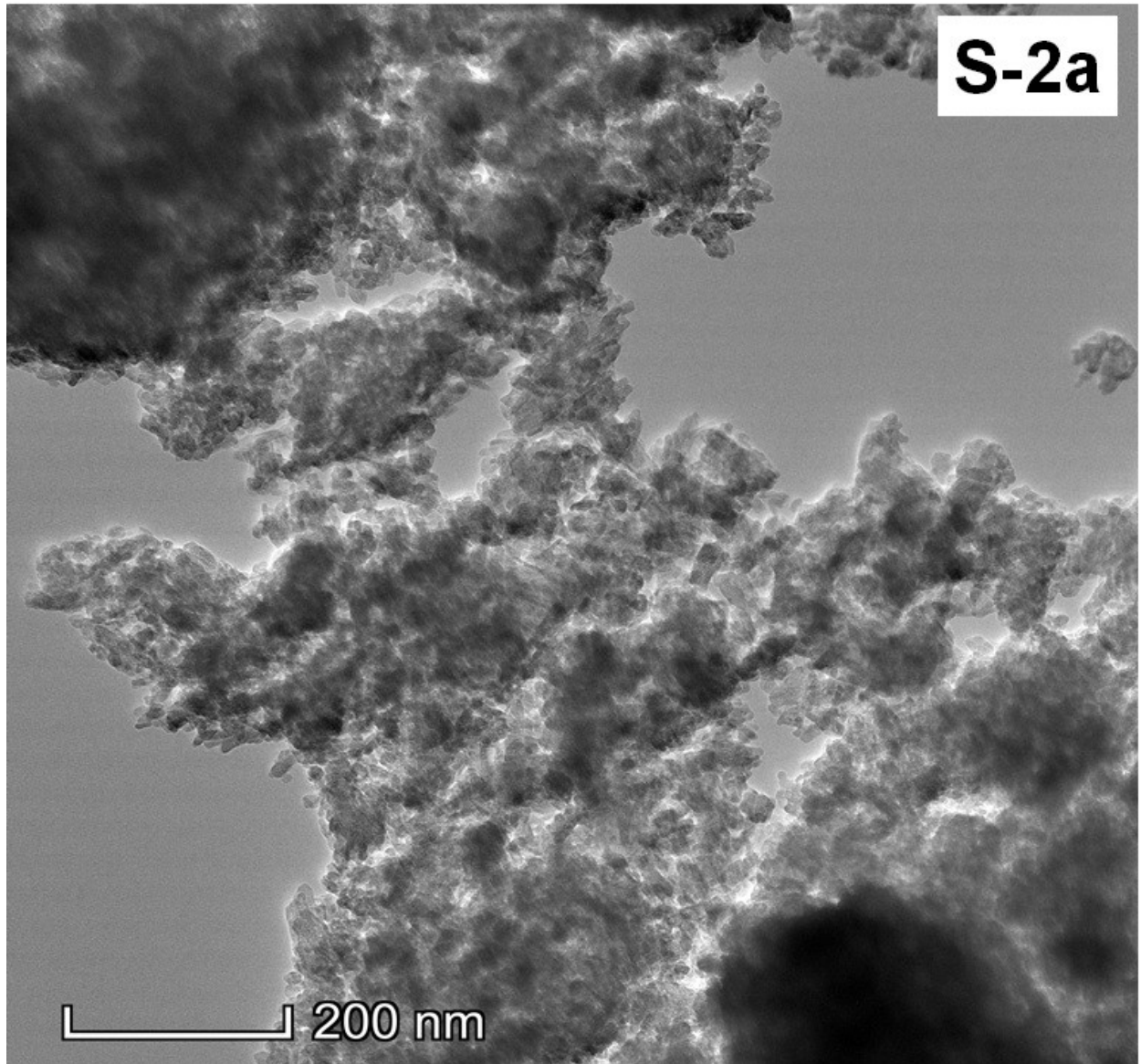


Fig S-2a: TEM image of oven dried Hap but no  $\gamma$ -radiation applied

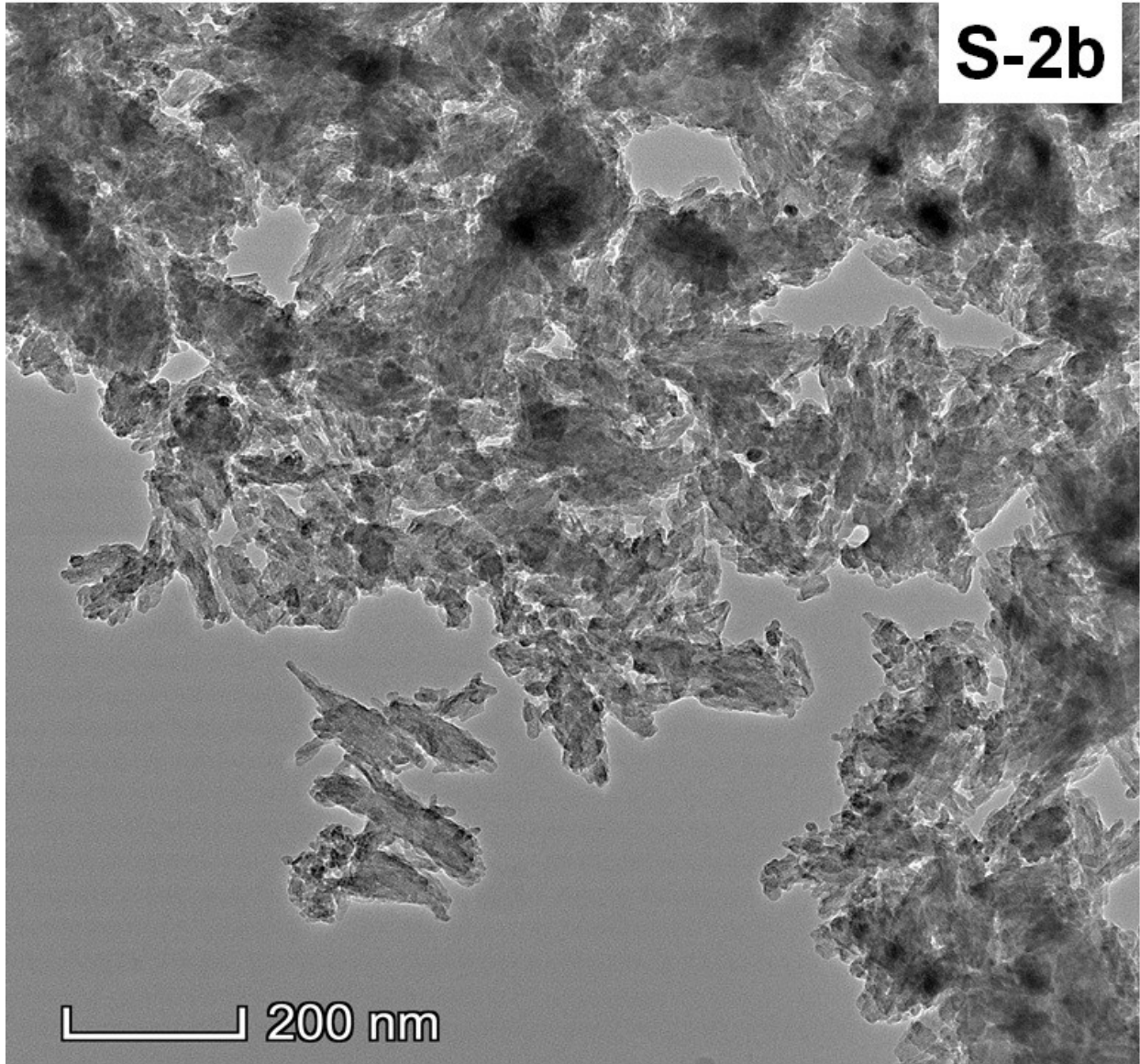


Fig S-2b: TEM image of  $\gamma$ -radiated Hap

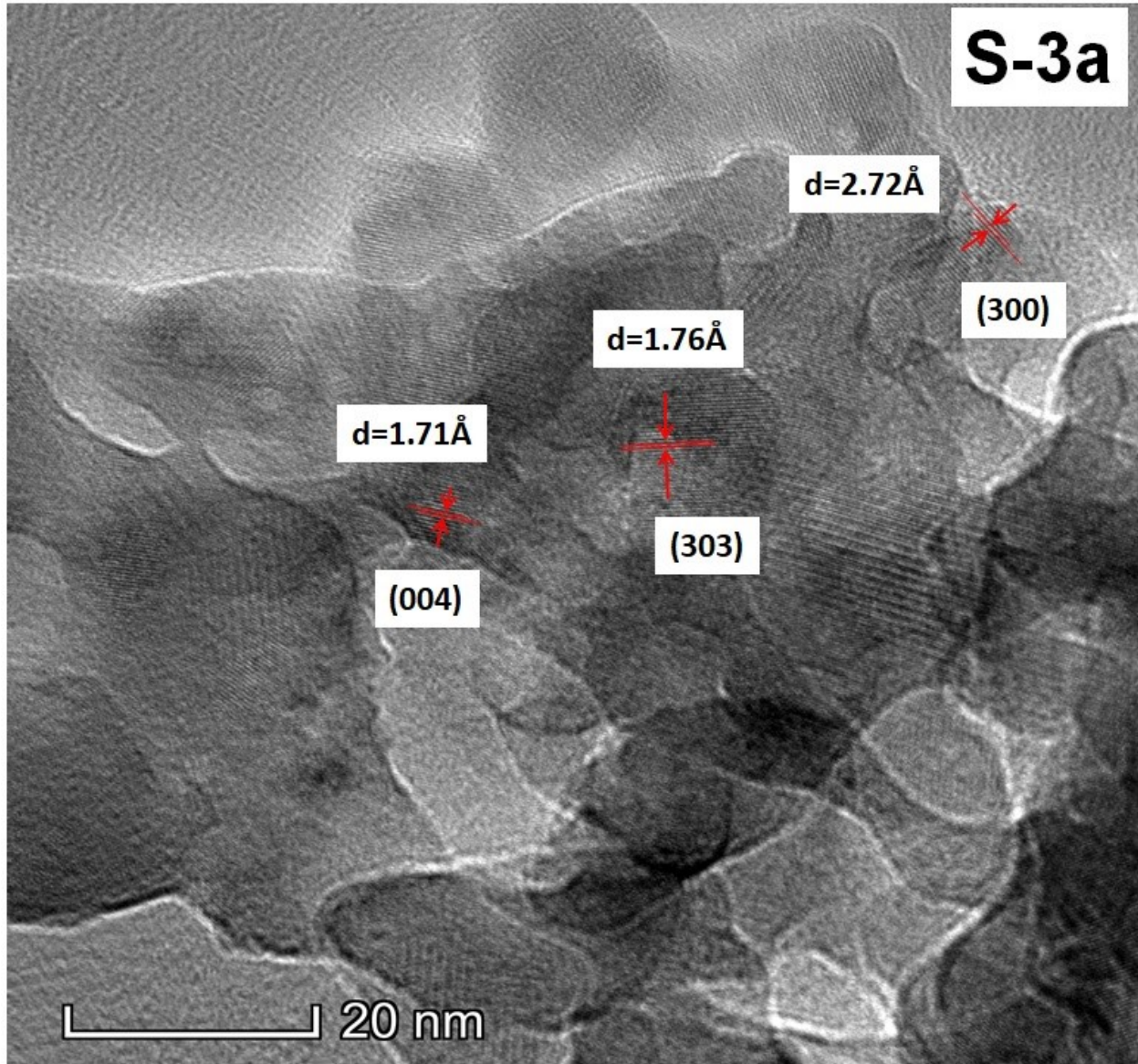


Fig S-3a: Lattice fringe of oven dried Hap but no  $\gamma$ -radiation applied

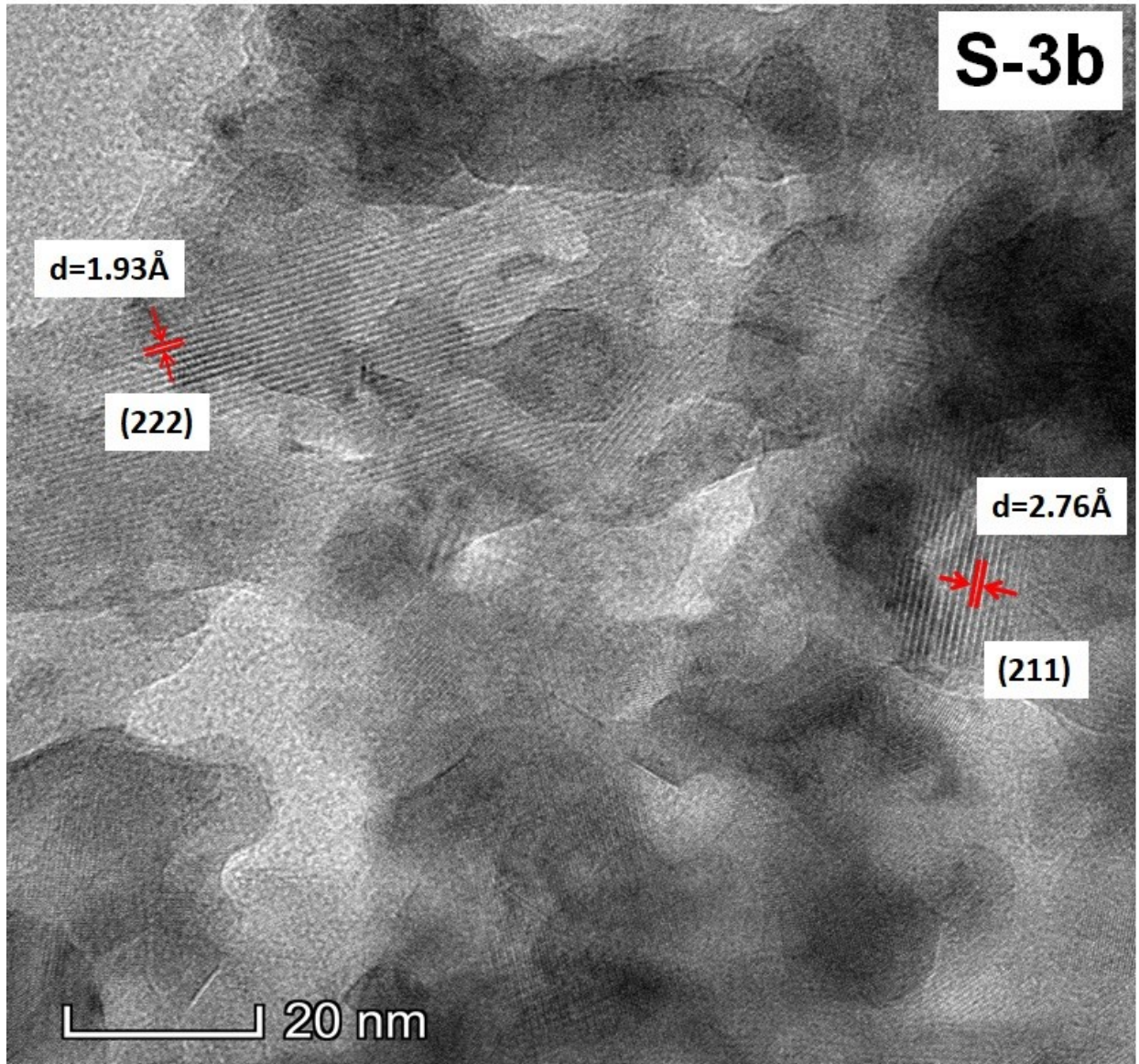


Fig S-3b: Lattice fringe of  $\gamma$ -radiated Hap

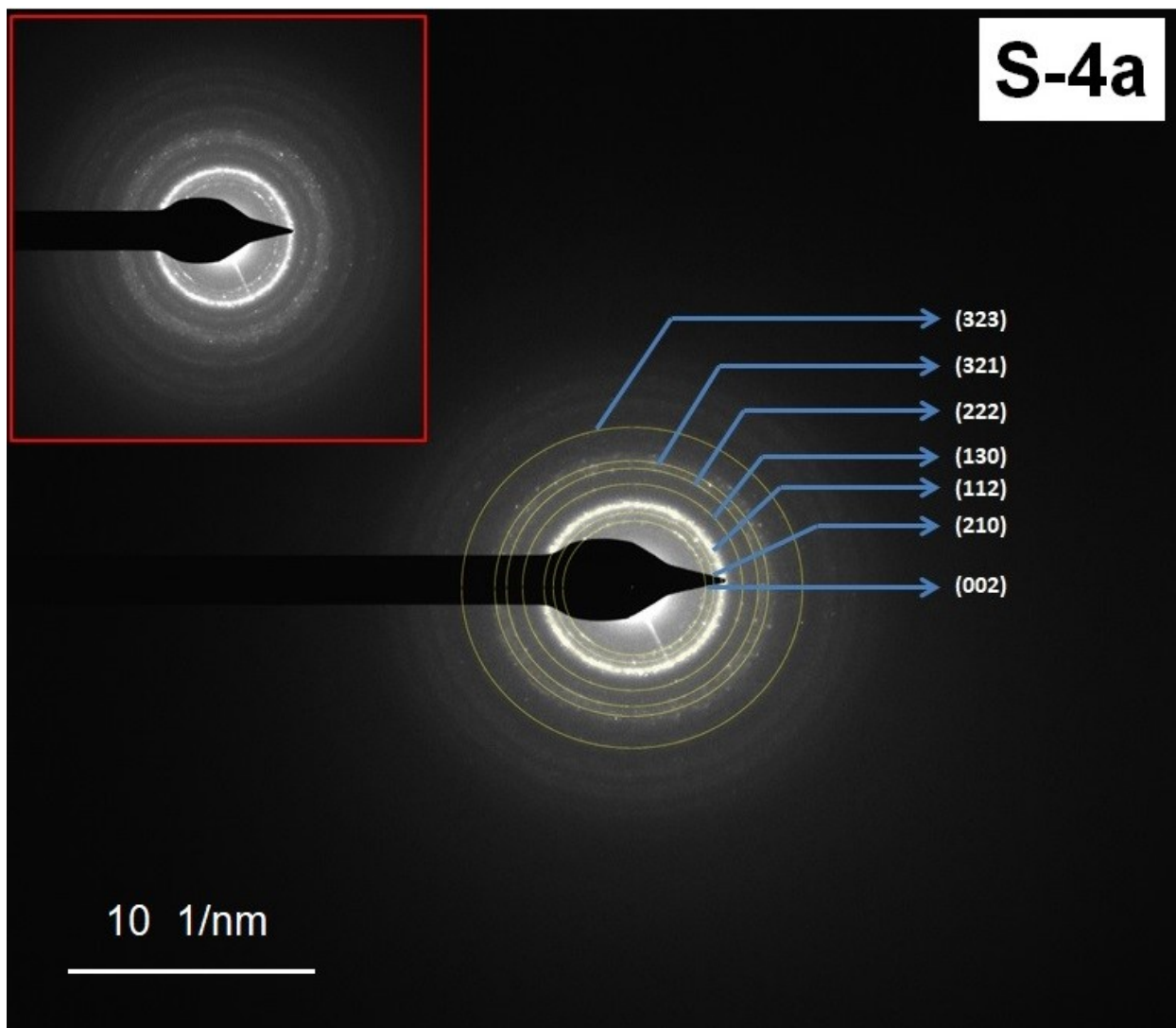


Fig S-4a: SAED ring image of oven dried Hap but no  $\gamma$ -radiation applied

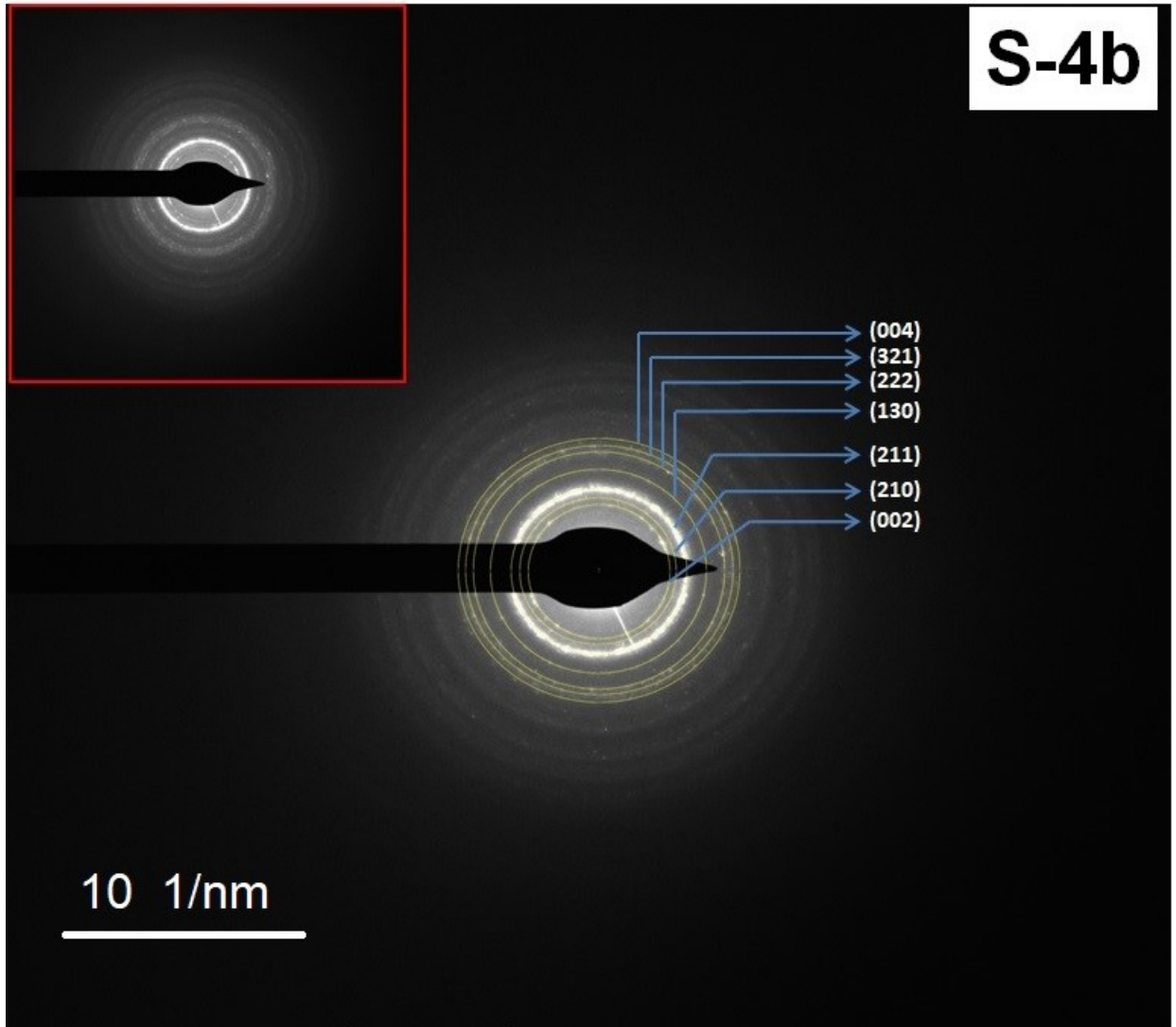


Fig S-4b: SAED images of  $\gamma$ -irradiated Hap



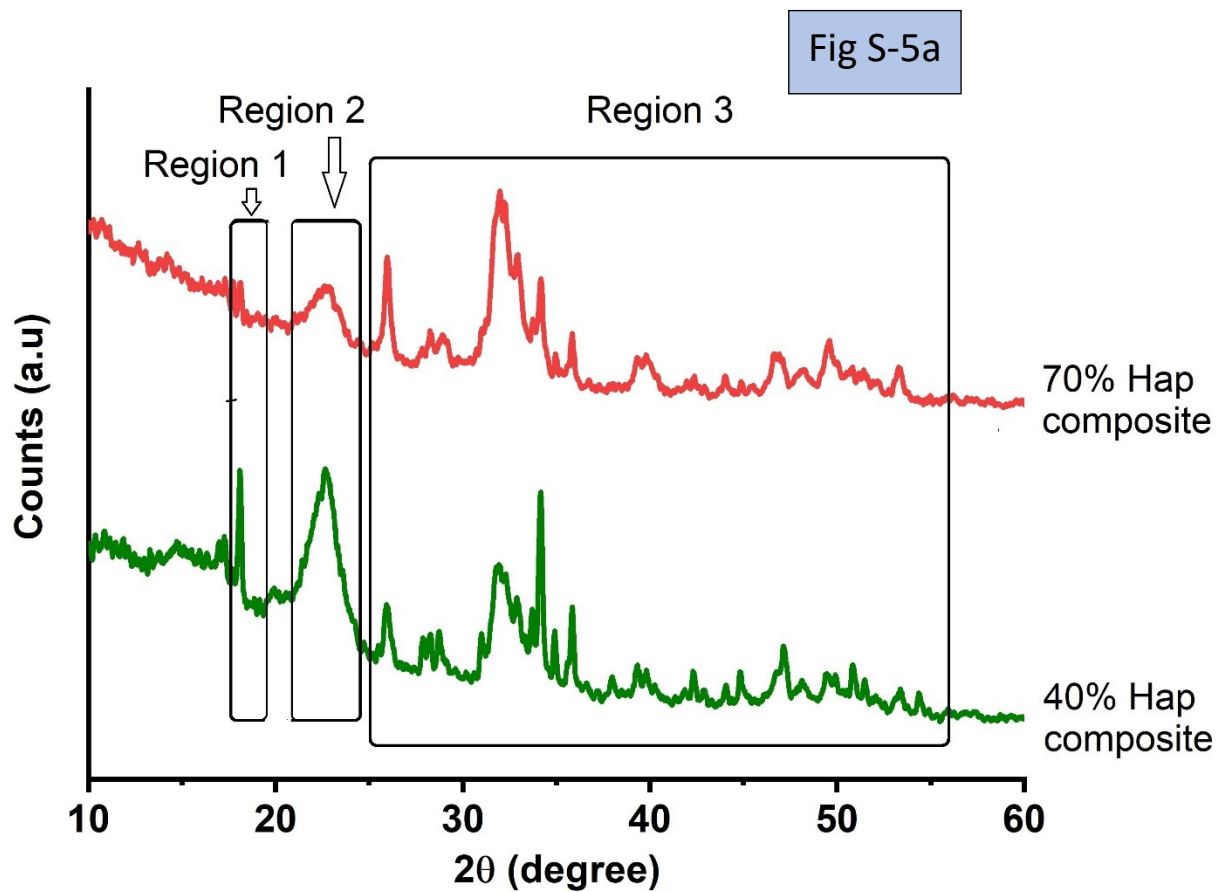


Fig S-5a: XRD pattern of  $\gamma$ -radiated Hap-CS-CNC composite

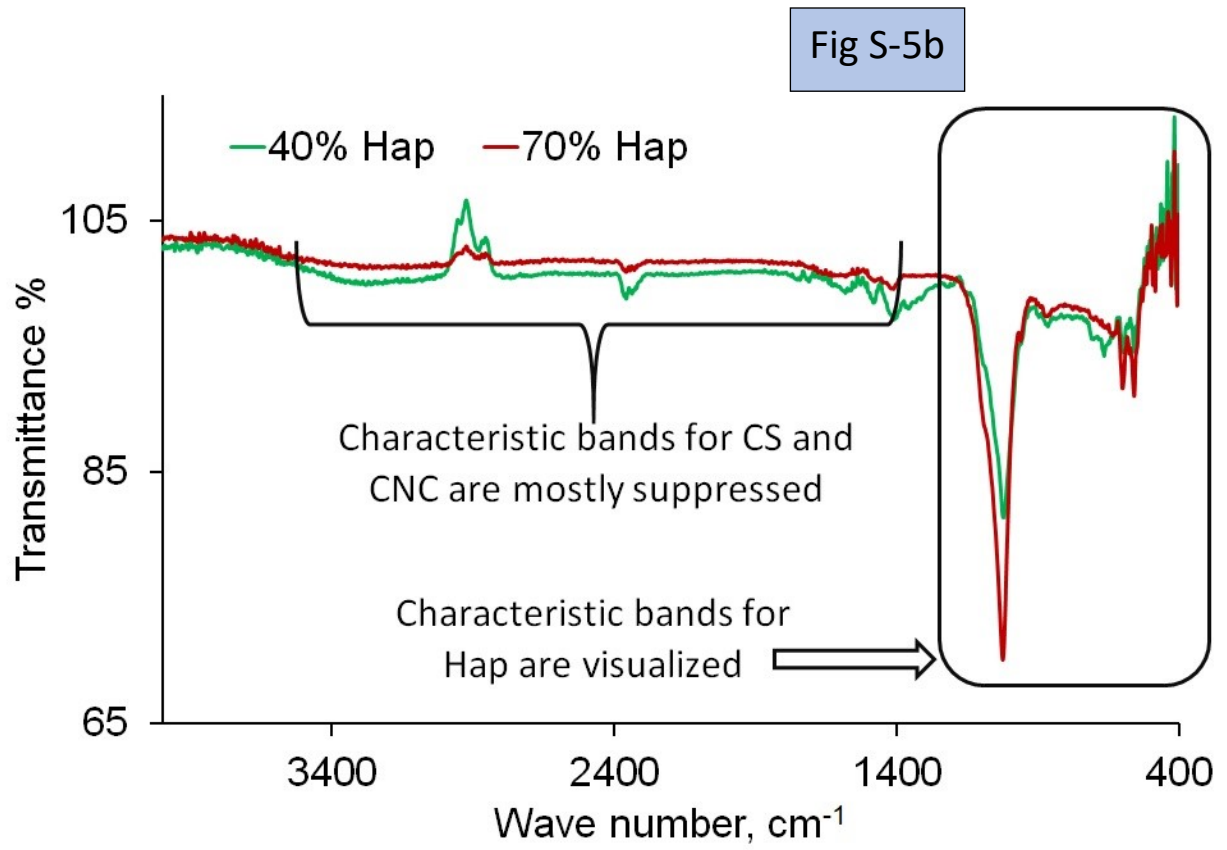


Fig S-5b: FTIR spectra of  $\gamma$ -radiated Hap –CS-CNC composite

Fig S-6

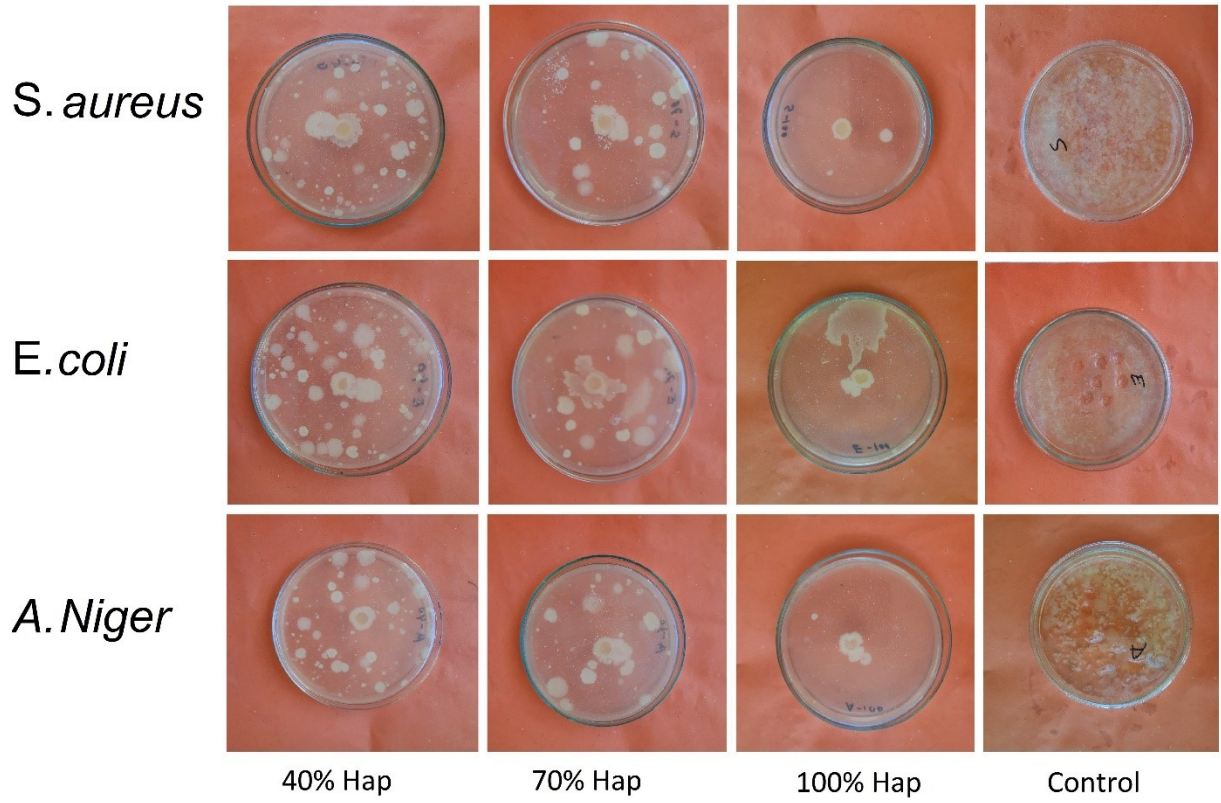


Fig S-6: Microscopic images showing antimicrobial activities of  $\gamma$ -radiated Hap –CS-CNC composites and controlled