

**Structural, electrical and photocatalytic properties of iron-containing soda-lime aluminosilicate glass and glass-ceramics**

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## Figure captions

**Fig. 1** XRD patterns of samples (a) effect of  $\text{Fe}_2\text{O}_3$  heat-treated at 800 °C for 100 min, (b) effect of basicity heat-treated at 800 °C for 100 min and (c) as collected slag (not heat-treated), melted slag and modified slag heat-treated at 800 °C for 100 min

**Fig. 2** RT Mössbauer spectra of samples (a) effect of  $\text{Fe}_2\text{O}_3$  heat-treated at 800 °C for 100 min, (b) effect of basicity heat-treated at 800 °C for 100 min and (c) as collected slag (not heat-treated), melted slag and modified slag heat-treated at 800 °C for 100 min

**Fig. 3** Images TEM of the samples of effect of basicity heat-treated at 800 °C for 100 min

**Fig. 4** (a) The conductivity spectra for samples of the basicity effect, (b) the relation between the  $\text{CaO}/\text{SiO}_2$  and DC conductivity

**Fig. 5** Complex impedance plots and equivalent circuit modeling for samples of the basicity effect

**Fig. 6** Kinetic dye degradation measurements of methylene blue for the samples of effect of  $\text{Fe}_2\text{O}_3$  heat-treated at 800 °C for 100 min

**Fig. 7** Kinetic dye degradation measurements of methylene blue for the samples of effect of basicity heat-treated at 800 °C for 100 min

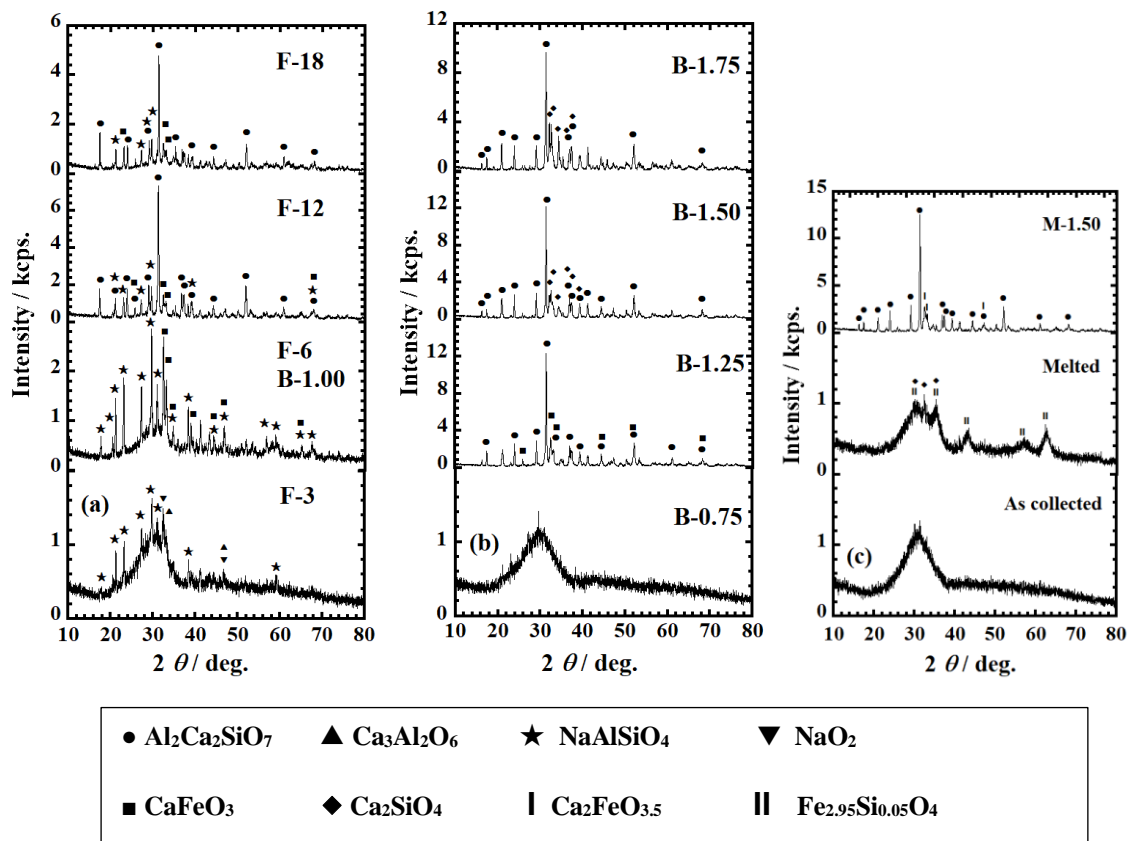
**Fig. 8** The relation between  $\text{CaO}/\text{SiO}_2$ , Mössbauer isomer shifts and  $k$  values for the samples of effect of basicity heat-treated at 800 °C for 100 min

**Fig. 9** IR spectra of the sample B-1.50 and the modified slag M-1.50

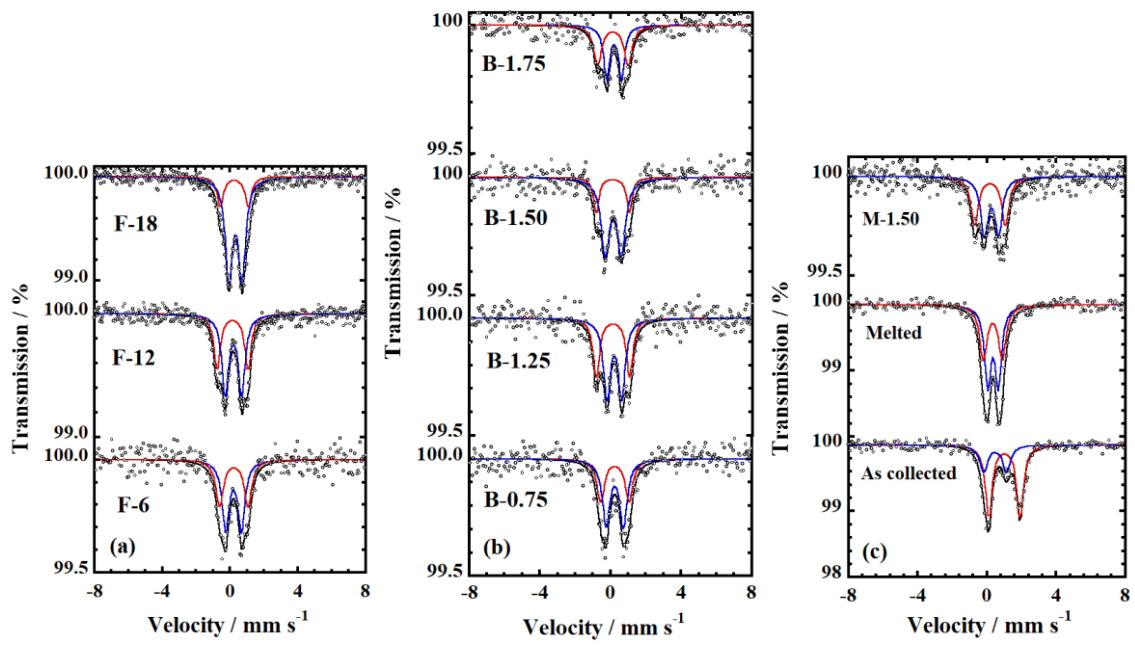
**Fig. 10** Effect of (a) H<sub>2</sub>O<sub>2</sub> concentration, (b) initial pH, (c) Dye concentration and (d) catalyst loading on the methylene blue degradation under visible light for the sample B-1.50 heat-treated at 800 °C for 100 min

**Fig. 11** Effect of temperature on the methylene blue degradation under visible light for the sample B-1.50 heat-treated at 800 °C for 100 min

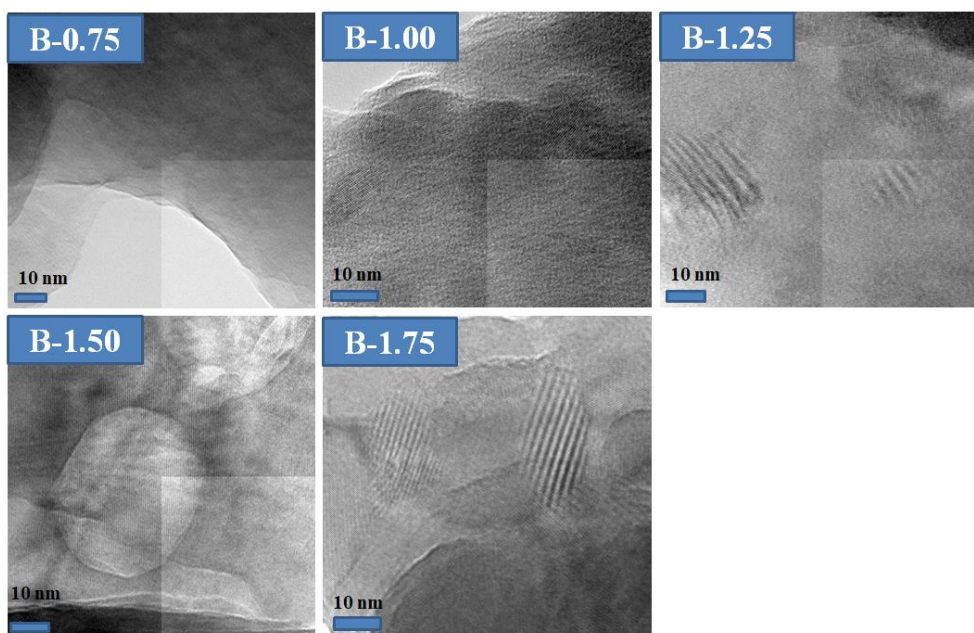
**Fig. 12** Reusability of the sample B-1.50 heat-treated at 800 °C for 100 min at room temperature under visible light, pH of 10, catalyst loading 4 g L<sup>-1</sup>, MB concentration 20 μM and H<sub>2</sub>O<sub>2</sub> of 0.35 M



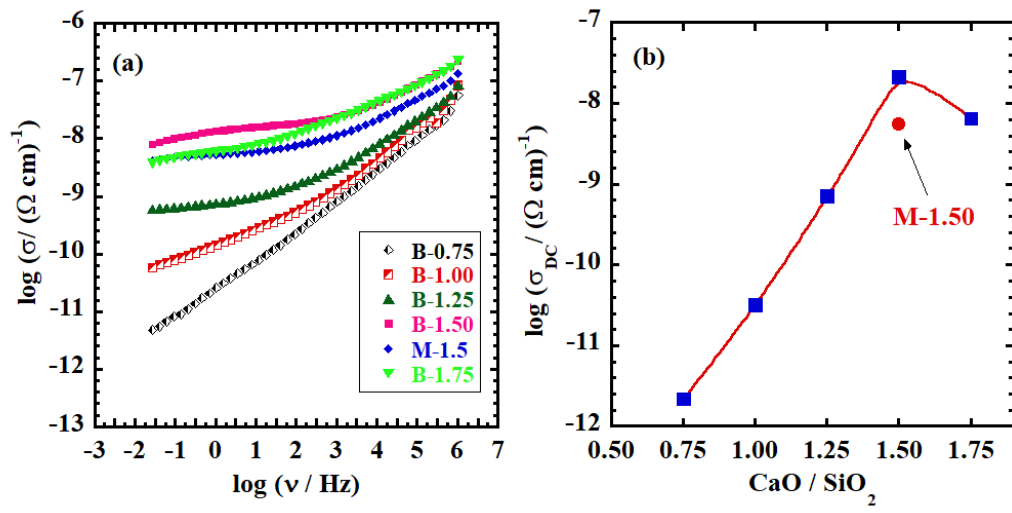
A. S. Ali *et al.*, Fig. 1



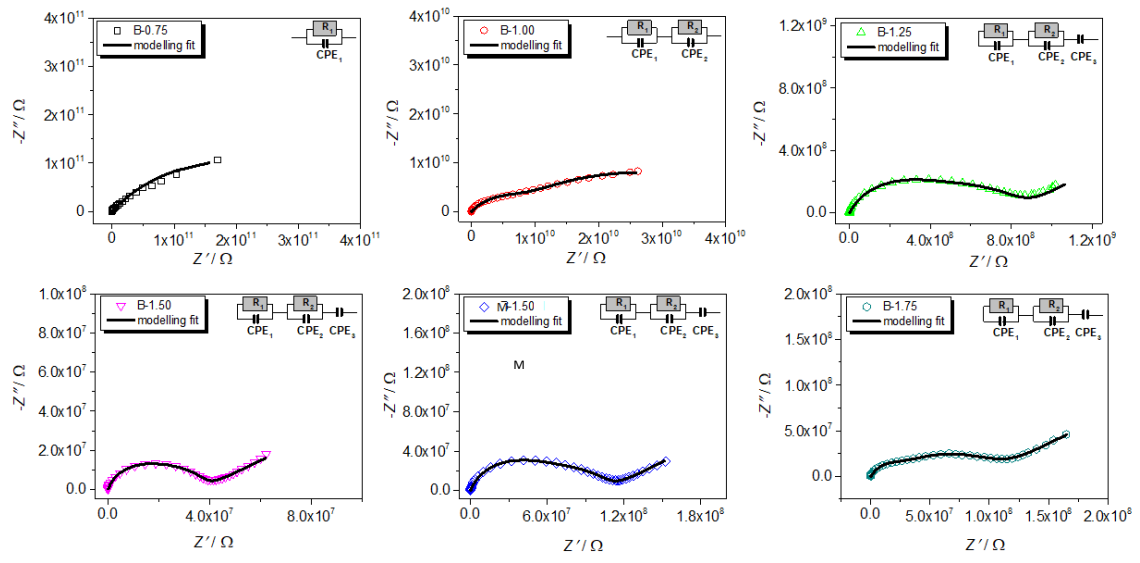
A. S. Ali *et al.*, Fig. 2



A. S. Ali *et al.*, Fig. 3

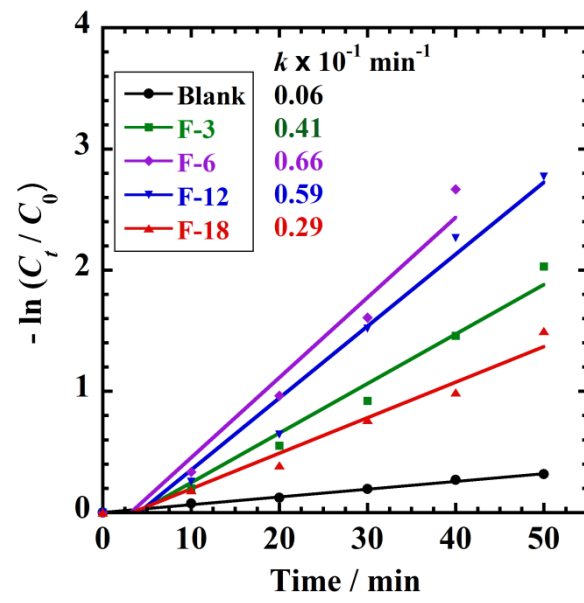


A. S. Ali *et al.*, Fig. 4

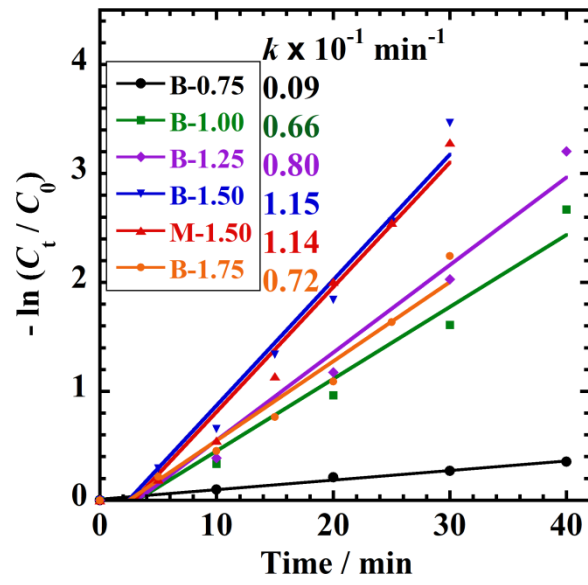


A. S. Ali *et al.*, Fig. 5

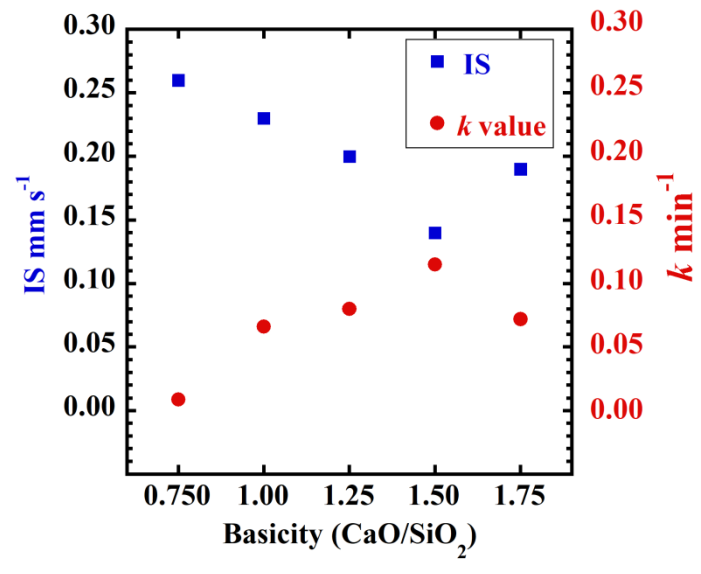




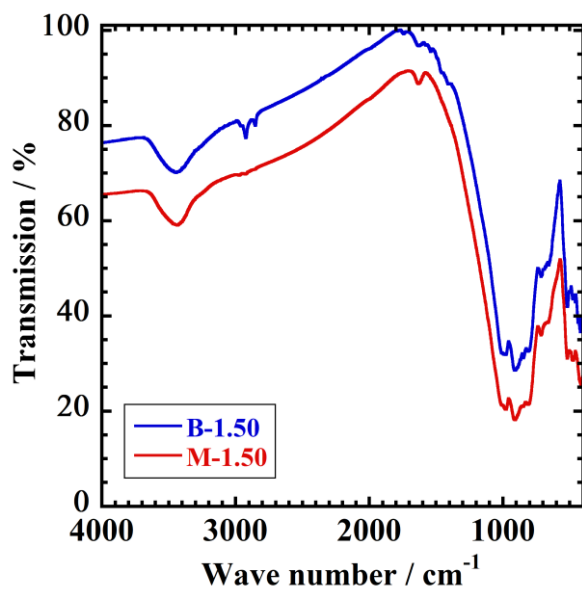
A. S. Ali *et al.*, Fig. 6



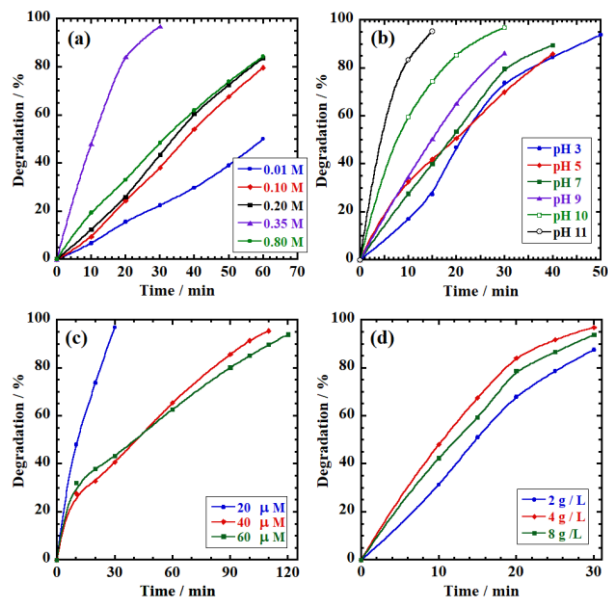
A. S. Ali *et al.*, Fig. 7



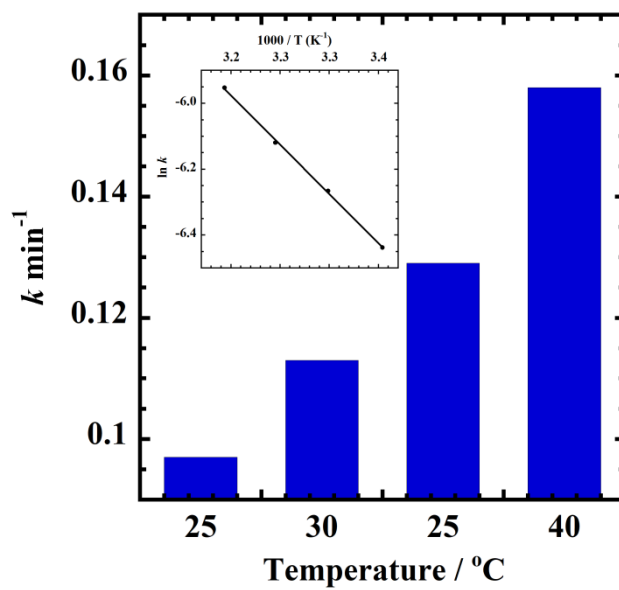
A. S. Ali *et al.*, Fig. 8



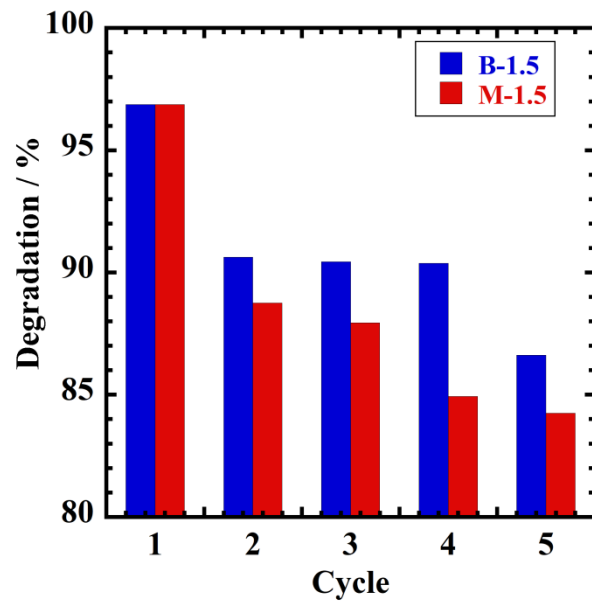
A. S. Ali *et al.*, Fig. 9



A. S. Ali *et al.*, Fig. 10



A. S. Ali *et al.*, Fig. 11



A. S. Ali *et al.*, Fig. 12