

**Influence of Media on Matured Calcite to Vaterite Phase Transformation  
in the Presence of *Symphytum officinale***

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## **Materials**

The materials used in this research calcium chloride dihydrate ( $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$  extrapure AR, 99.5%) was purchased from SRL, and sodium carbonate anhydrous pure ( $\text{Na}_2\text{CO}_3$ ) was obtained from Merck and used as received. Comfrey was purchased online from Herbaveda overseas packed and marketed by Leanbeing Healthcare and used as such.

## **Characterization of synthesized $\text{CaCO}_3$ powder**

### **Fourier Transform Infrared Spectroscopy (FTIR)**

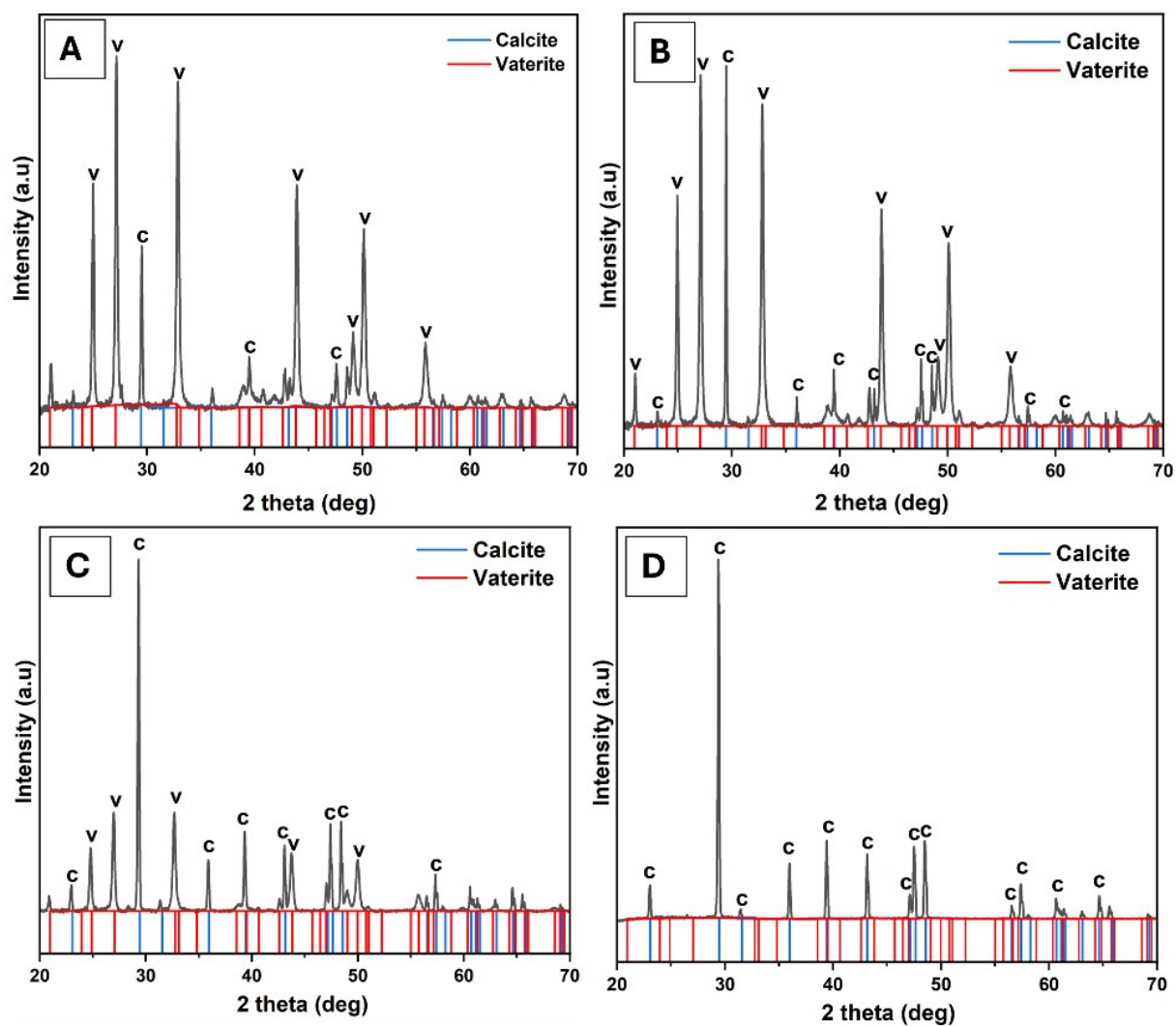
Synthesized  $\text{CaCO}_3$  was analyzed using FTIR (PerkinElmer Spectrum IR) range from 4000-400  $\text{cm}^{-1}$ .

### **Powder X-ray Diffraction (PXRD)**

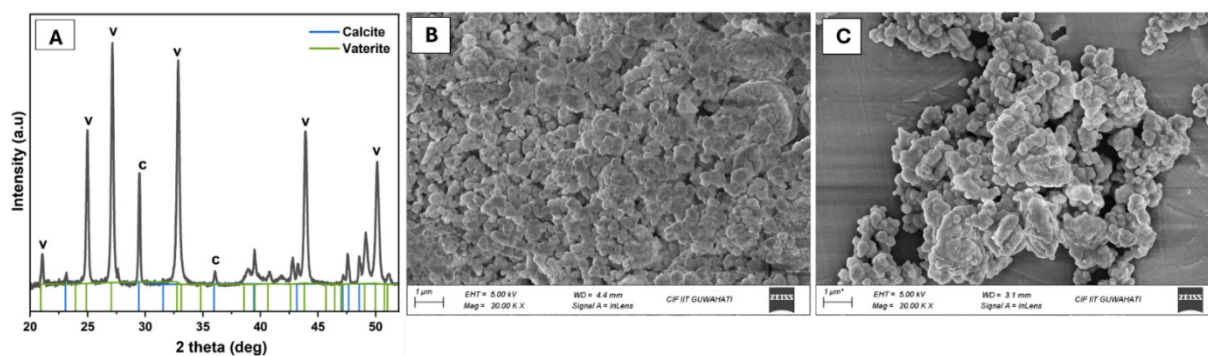
The Powder XRD and the quantitative analysis result of the samples were obtained from the Rigaku Smartlab X-ray Spectrophotometer with  $\text{Cu-K}\alpha$  ( $\lambda=1.54 \text{ \AA}$ ), source running at a power of 9 KW. Data was collected over a 2-theta range of  $20^\circ$ - $52^\circ$  with a scan step of  $0.02^\circ$ .

### **Field Emission Scanning Electron Microscopy**

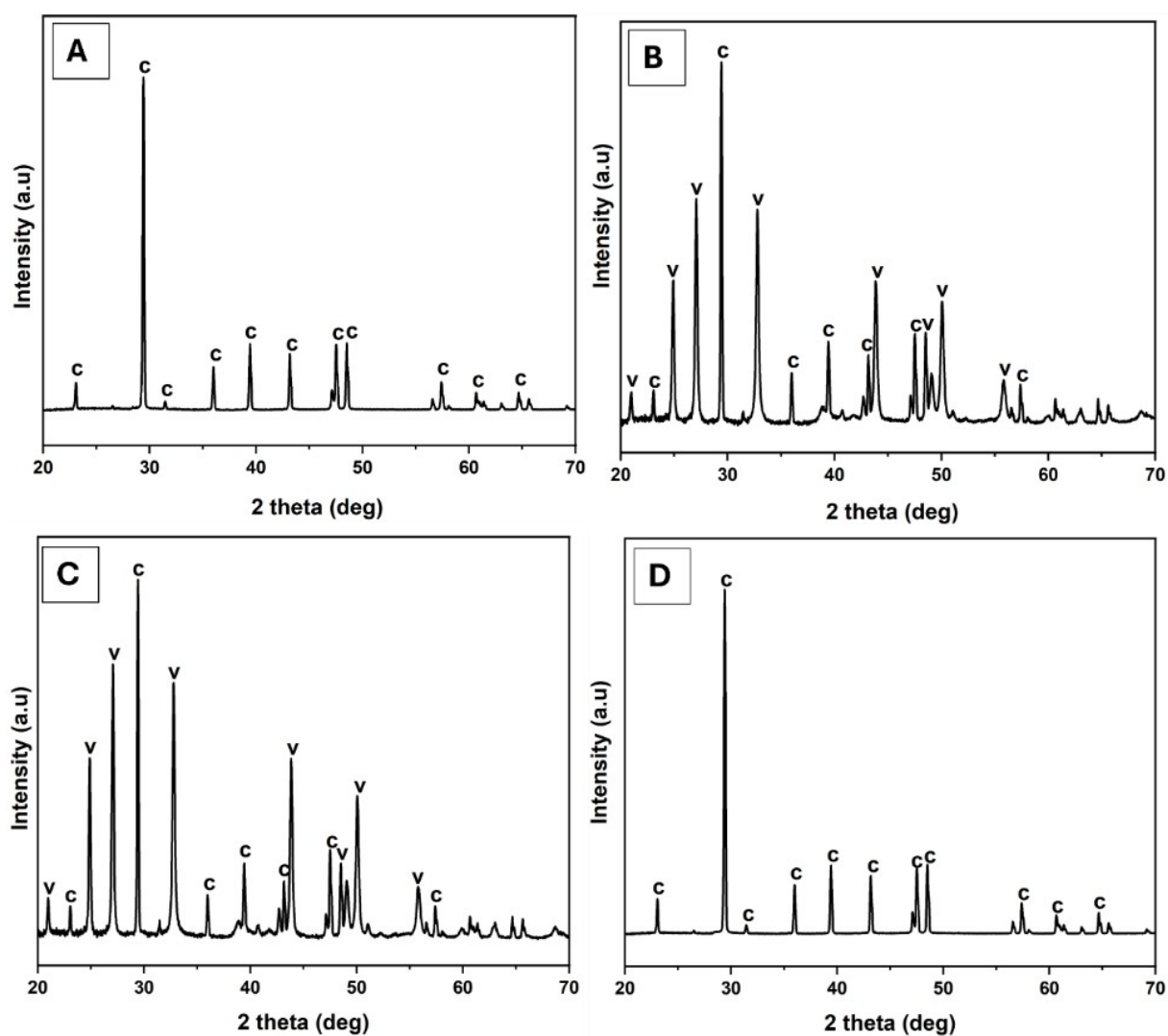
The morphology of obtained  $\text{CaCO}_3$  powder was analyzed using Sigma 300 FESEM (10000 KX) (Carl Zeiss) and Gemini 300 (Carl Zeiss). A very negligible amount of  $\text{CaCO}_3$  powder was spread on carbon tape and then sputtered with gold before analysis. For the drop cast method, a sample solution was prepared in the concentration of 1 mM/2  $\mu\text{l}$  and then drop cast on a glass plate covered with Al-foil. The morphology of  $\text{CaCO}_3$  powder under different parameters was observed.



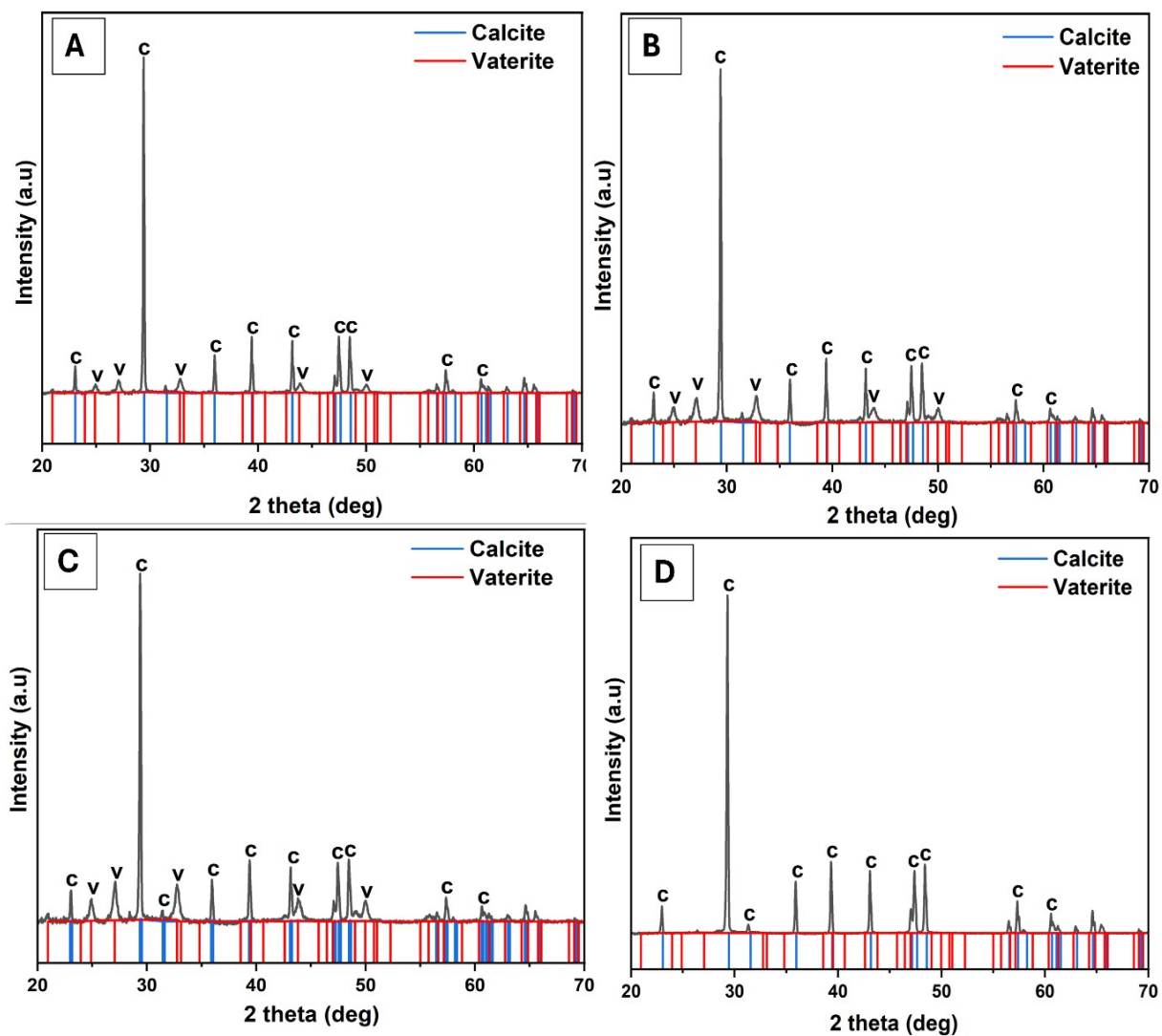
**Fig. S1** PXRD pattern of  $\text{CaCO}_3$  precipitate in presence of  $5\mu\text{L}$  comfrey in Milli Q water at different maturation period (A) 5min (B) 30min (C) 1hour (D) 4 days.



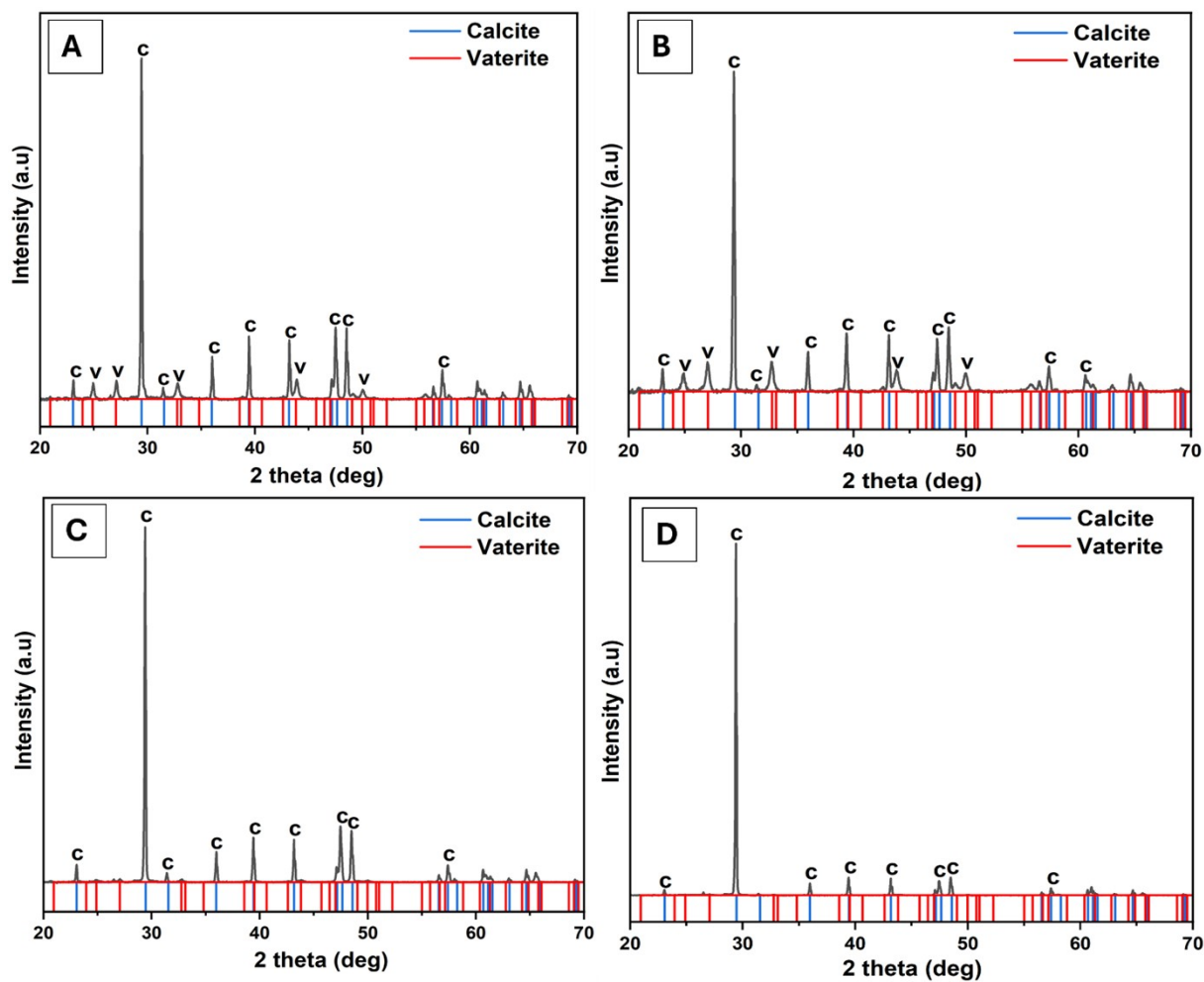
**Fig. S2** (A) PXRD taken after 6 months (B) FESEM image of 6 months old  $\text{CaCO}_3$  (C) FESEM of 1 year 3 months old  $\text{CaCO}_3$ .



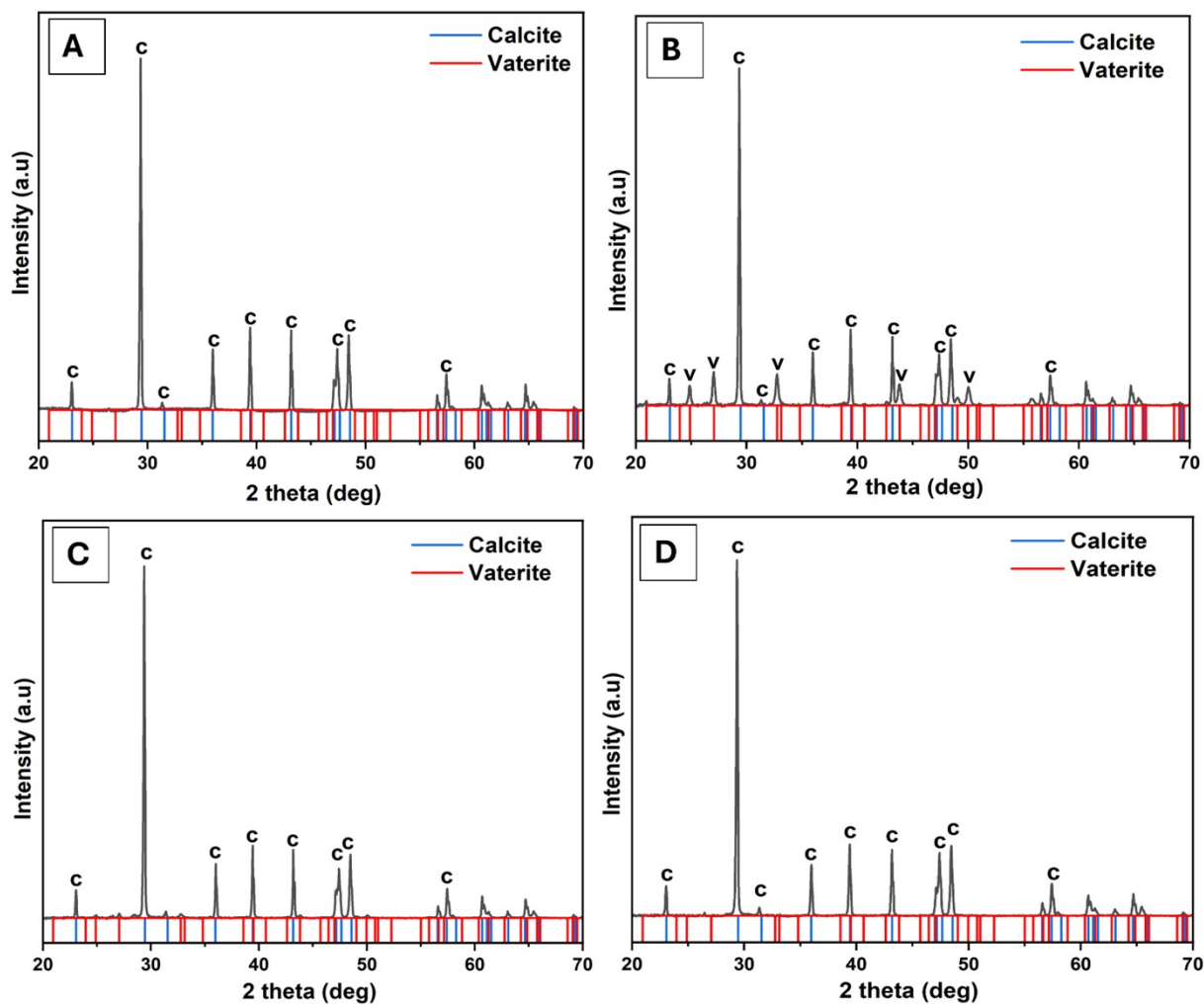
**Fig. S3** PXRD pattern of  $\text{CaCO}_3$  precipitate in the presence of  $50\mu\text{L}$  comfrey in Milli Q water at different maturation periods (A) 5min (B) 30min (C) 1 hour (D) 4 days.



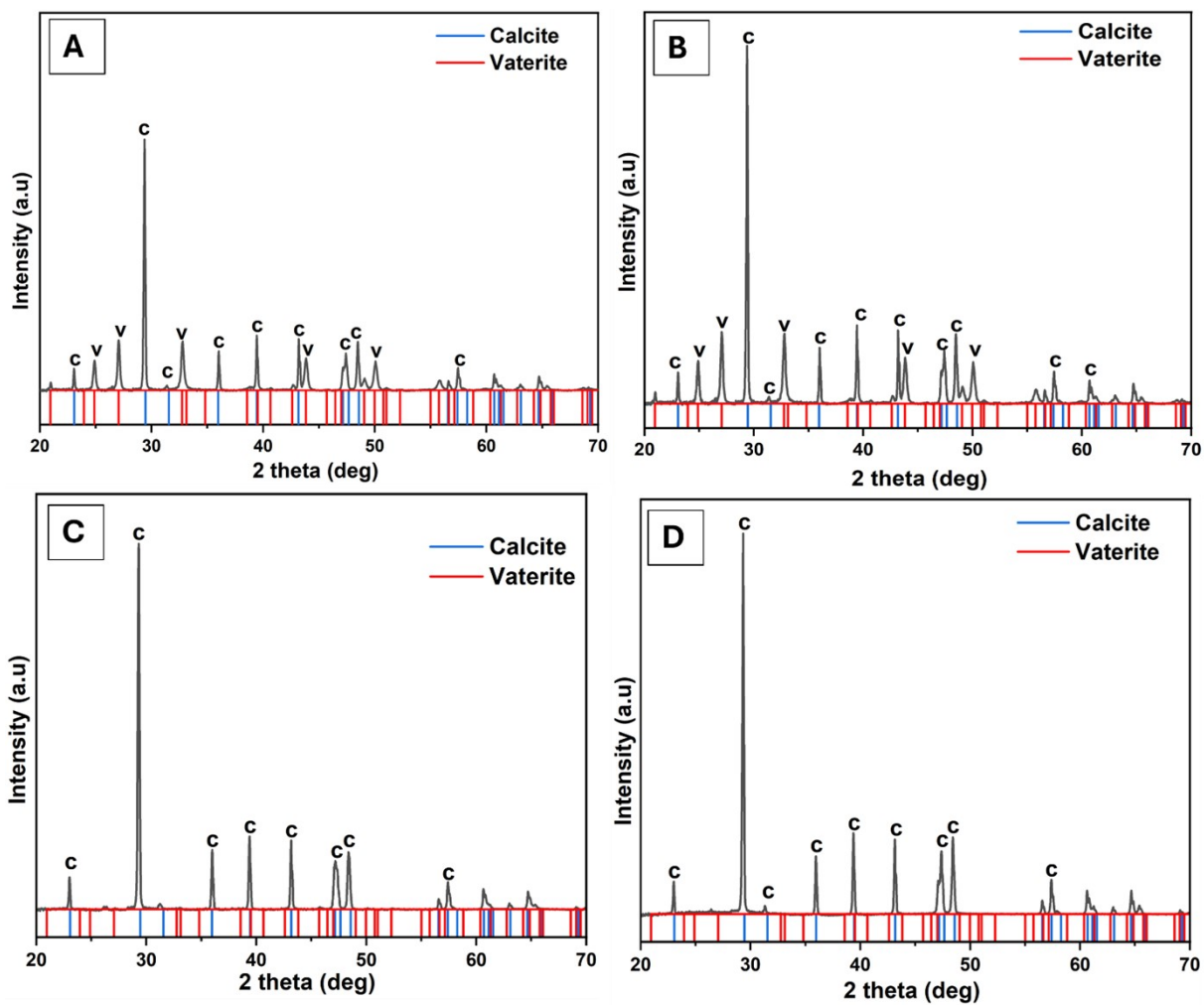
**Fig. S4** PXRD pattern of  $\text{CaCO}_3$  precipitate in the presence of  $5\mu\text{L}$  comfrey in SBF at different maturation periods (A) 5min (B) 30min (C) 1hour (D) 4 days.



**Fig. S5** PXRD pattern of  $\text{CaCO}_3$  precipitate in the presence of  $50\mu\text{L}$  comfrey in SBF at different maturation periods (A) 5min (B) 30min (C) 1hour (D) 4 days.



**Fig. S6** PXRD pattern of  $\text{CaCO}_3$  precipitate in the presence of  $5\mu\text{L}$  comfrey in ASW at different maturation periods (A) 5min (B) 30min (C) 1hour (D) 4 days.



**Fig. S7** PXRD pattern of  $\text{CaCO}_3$  precipitate in the presence of  $50\mu\text{L}$  comfrey in ASW at different maturation periods (A) 5min (B) 30min (C) 1 hour (D) 4 days.