

MS13-P05 | THE INTERACTION BETWEEN CALCIUM CARBONATE AND CALCIUM PHOSPHATE AS THE DRIVING MECHANISM FOR CARBONATE-HYDROXYAPATITE FORMATION

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The mechanisms involved in carbonate-hydroxyapatites (CAp) growth in both biological and geological environments still represent a challenge for mineralogists and crystallographers, even if it is commonly accepted from crystallographic studies on CAp, that carbonate ions could be placed into both the OH⁻ and PO₄³⁻ sites of the apatite, originating the A-type or B-type of CAp [1-4].

We experimentally demonstrated that the presence of carbonate in solution affects both, the morphology and structure of apatites, the extent of the effects depending on the concentration. The continuity between morphological and structural effects of calcium carbonate on calcium hydroxyapatites was explained in the light of the cooperative effect [4-7] between Ca-carbonates in solution and Ca-hydroxyapatites, considering the modification of growth habit and the stabilization of carbonate-containing structures as a consequence of the epitaxy as the driving mechanism during crystal growth.

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