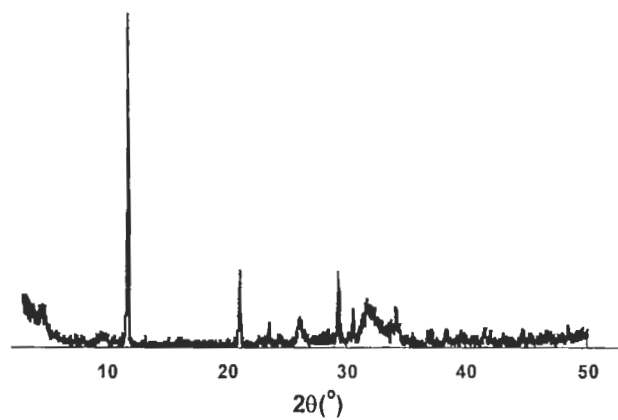
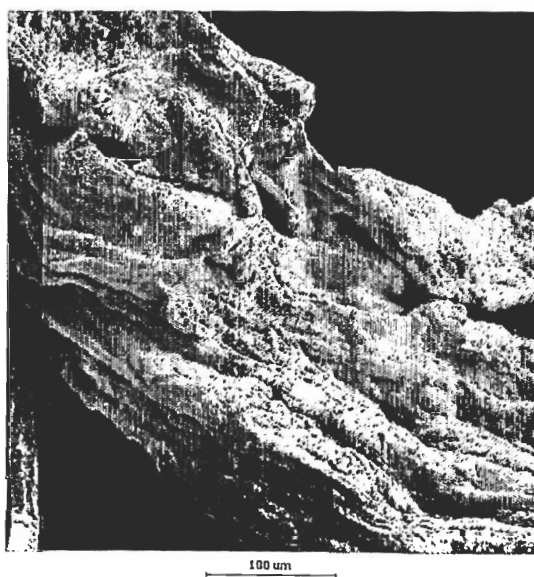


1/12



5 Figure 1: XRD pattern of composite following co-precipitation (Cu-K α radiation).

10



15 Figure 2: SEM micrograph of triple co-precipitate.

2/12



Figure 3: TEM micrograph of triple co-precipitate

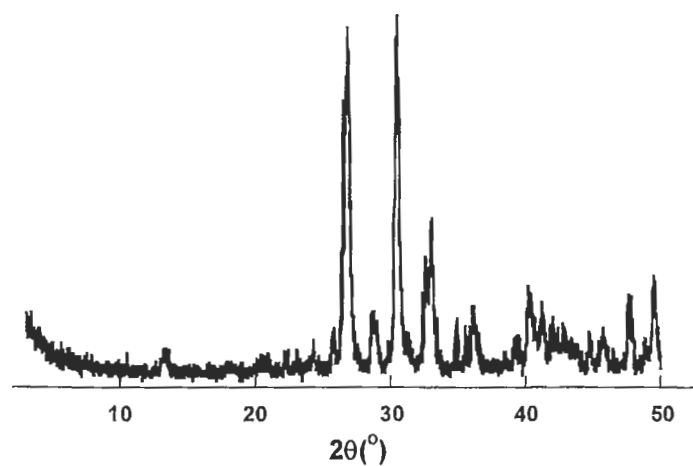
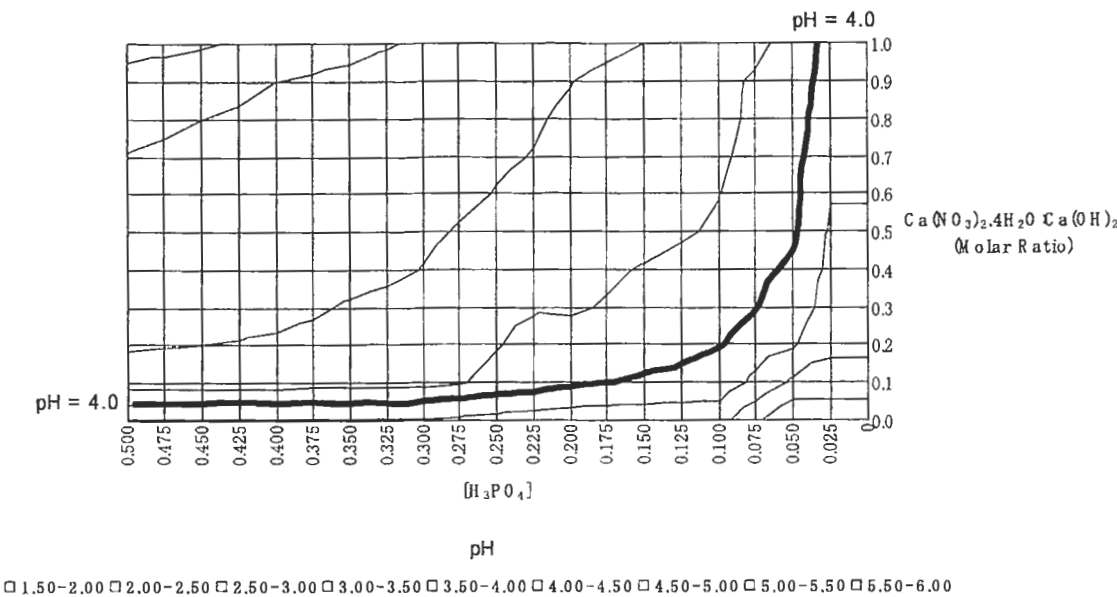
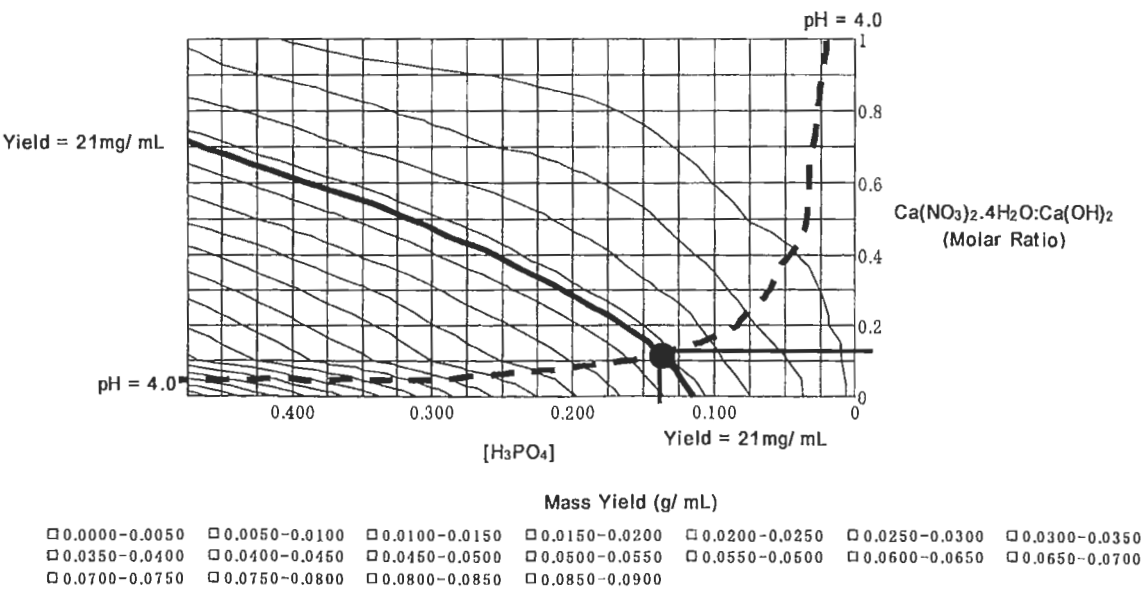


Figure 4: XRD pattern of composite following dehydrothermal treatment at 105°C and 50mTorr for 48 hours, indicating that the brushite phase has converted to its dehydrated form monetite.

3/12

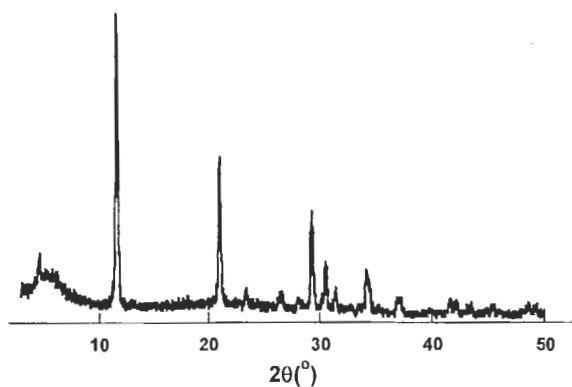


5 Figure 5: set of combinations of ionic concentration and calcium nitrate: calcium hydroxide ratio for maintaining pH = 4.0.

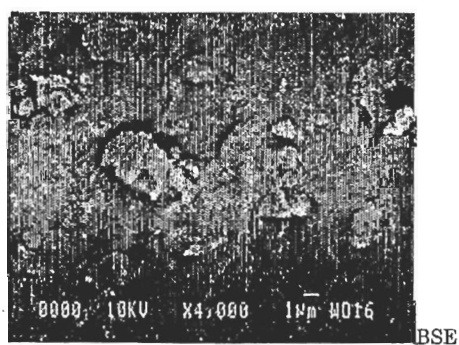
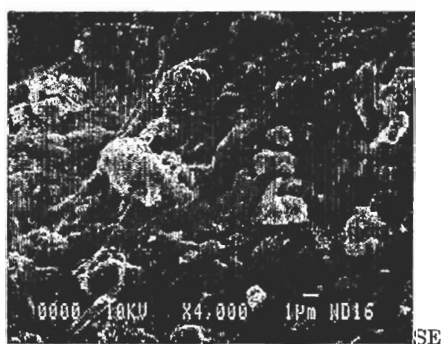


10 Figure 6: Identification of conditions for pH 4.0 synthesis of a triple coprecipitate slurry containing a 1:1 mass ratio of calcium phosphate to collagen plus GAG.

4/12

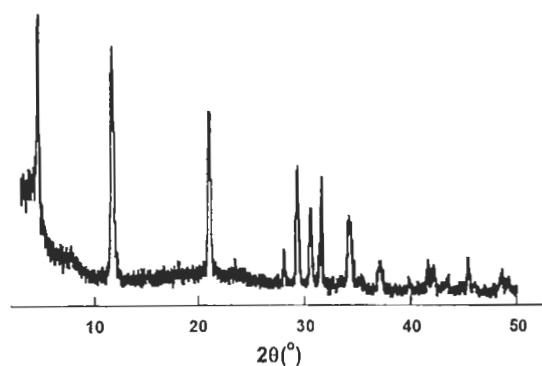


5 Figure 7: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following removal of unbound water (Cu-K α radiation).

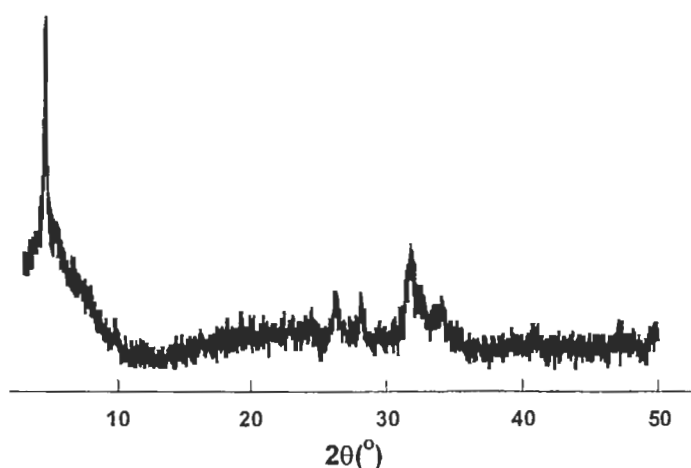


10 Figure 8: Secondary (SE) and backscattered electron (BSE) images of surface of triple coprecipitate with CaP: collagen + GAG = 1:1.

5/12



5 Figure 9: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following EDAC crosslinking (Cu- K_{α} radiation).



10 Figure 10: x-ray diffraction pattern of EDAC-crosslinked collagen/GAG/CaP triple coprecipitate following conversion at 37°C to octacalcium phosphate (OCP) over 72 hours at pH 6.67, to form a
15 collagen/GAG/OCP biocomposite (Cu- K_{α} radiation).

6/12

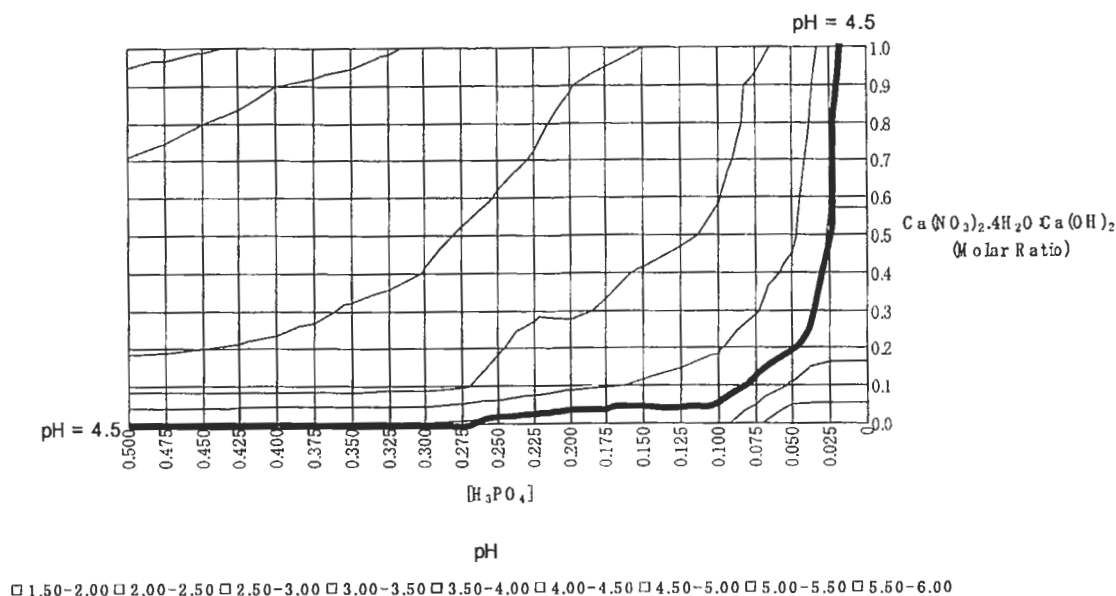


Figure 11: set of combinations of ionic concentration and calcium nitrate: calcium hydroxide ratio for maintaining pH = 4.5.

5

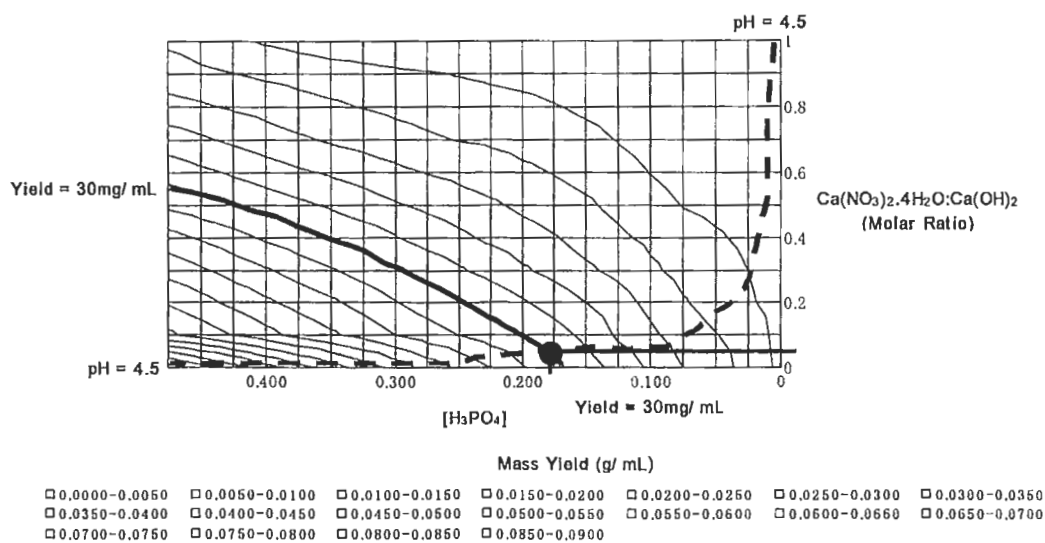
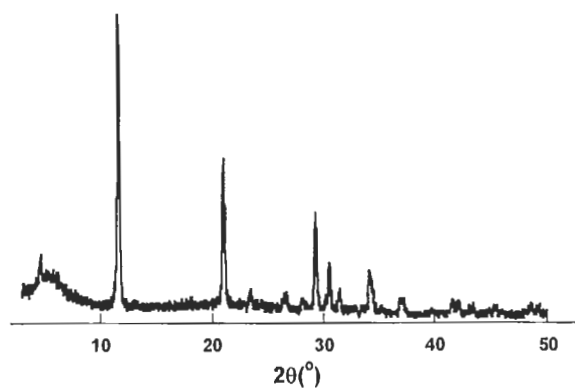


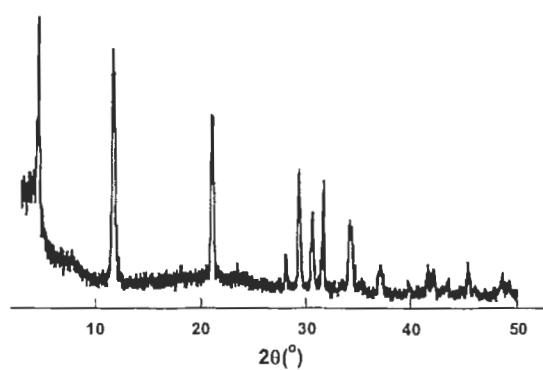
Figure 12: Identification of conditions for pH 4.5 synthesis of a triple coprecipitate slurry containing a 3:1 mass ratio of calcium phosphate to collagen plus GAG.

10

7/12



5 Figure 13: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following removal of unbound water ($\text{Cu-K}\alpha$ radiation).

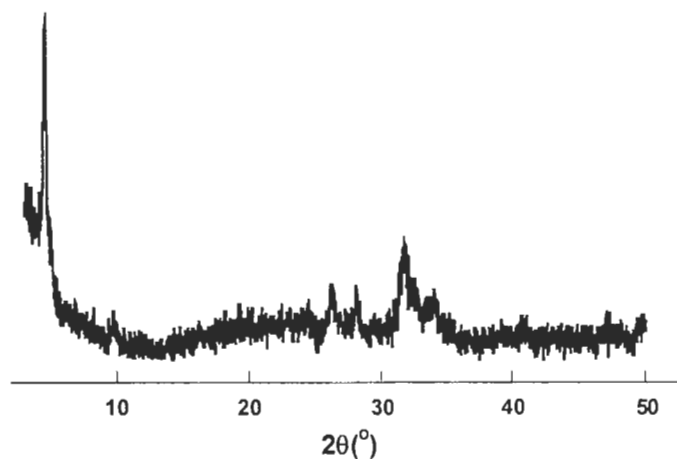


10 Figure 14: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following EDAC crosslinking ($\text{Cu-K}\alpha$ radiation).

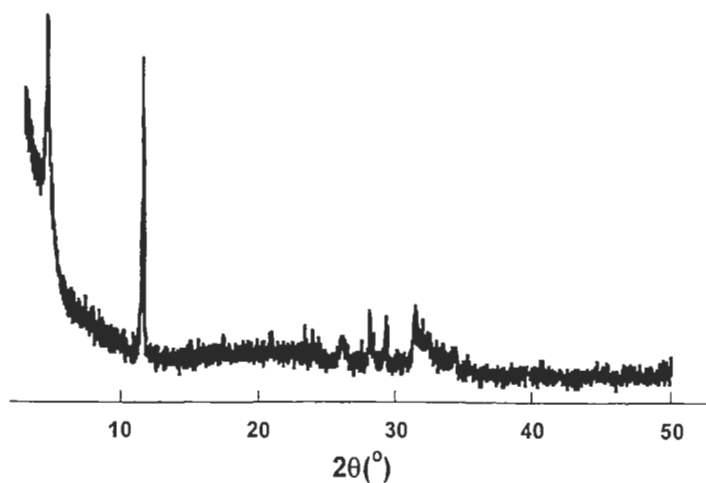
15

20

8/12



5 Figure 15: x-ray diffraction pattern of EDAC-crosslinked collagen/GAG/CaP triple coprecipitate following conversion at 37°C to apatite over 72 hours at pH 8.50, to form a collagen/GAG/apatite biocomposite (Cu- $\text{K}\alpha$ radiation).



10 Figure 16: X-ray diffraction pattern of EDAC-crosslinked collagen/GAG/Ap triple coprecipitates after secondary crosslinking via gamma irradiation.

9/12

5

10

20

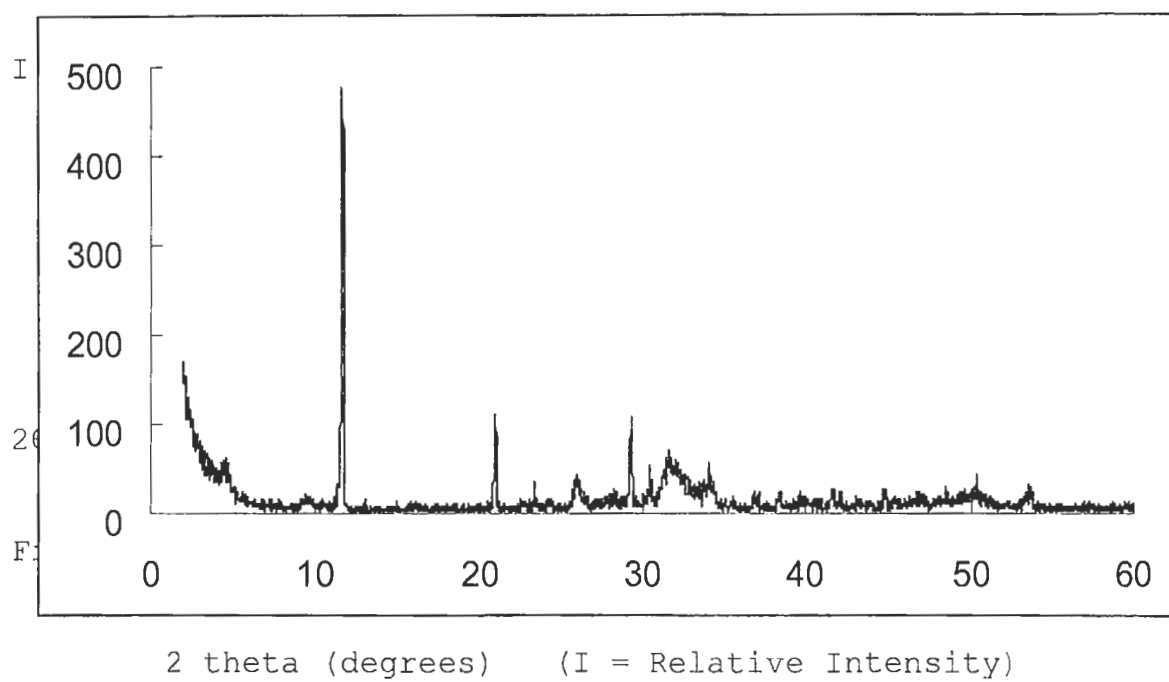
25

30

35

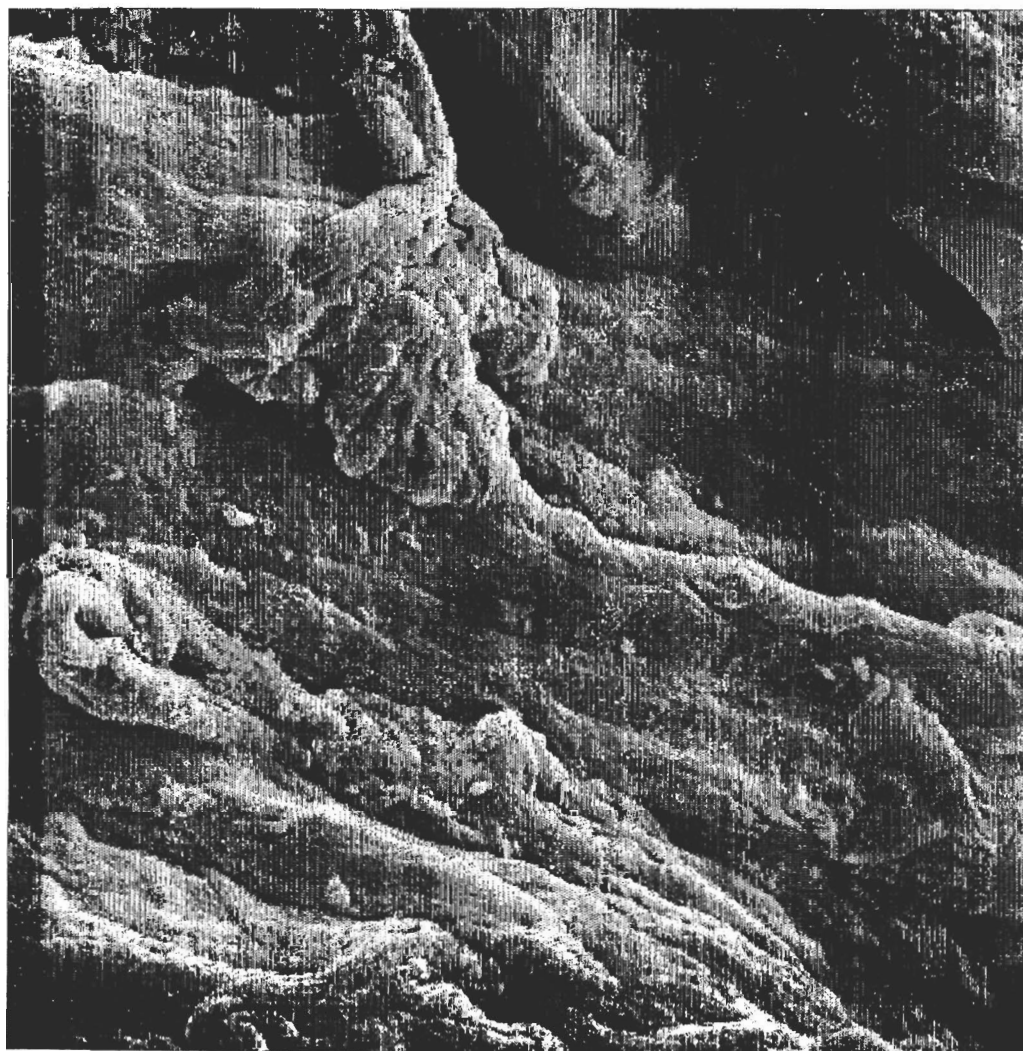
40

45

**Figure 17**

10/12

5



50 μm

10

Figure 18

15

11/12

5

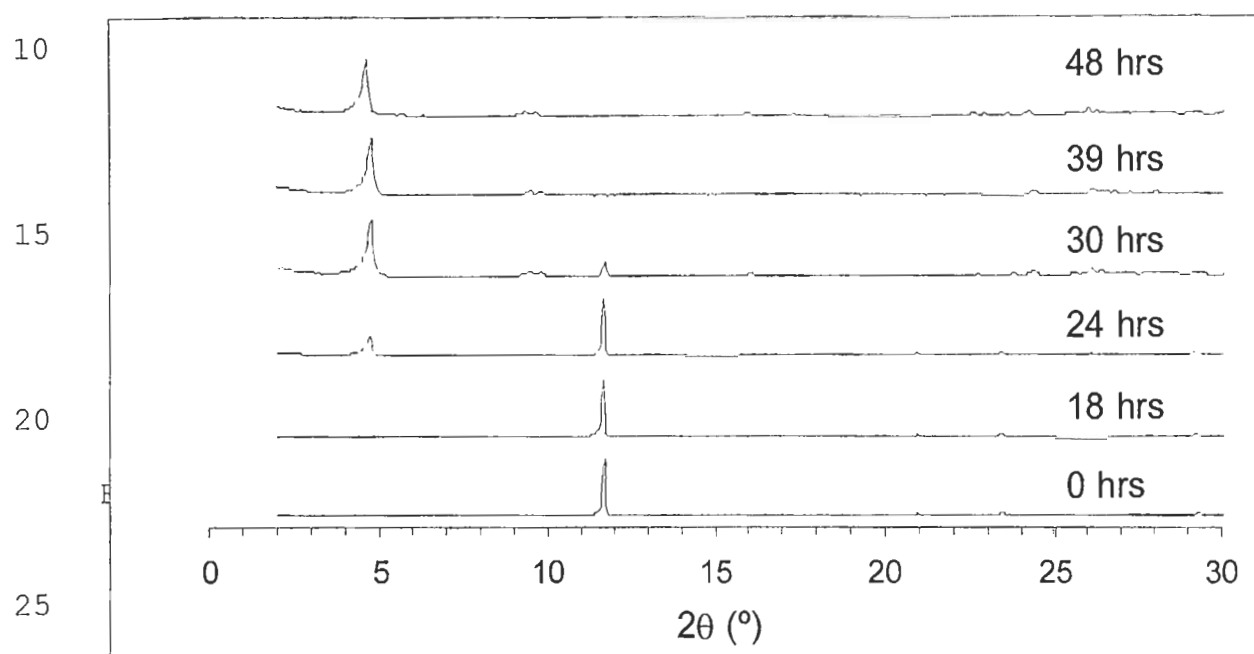


Figure 19

30

35

40

45

12/12

5

10

15

20

25

30

35

40



Figure 20