SYNTHESIS OF IRON OXIDE (Fe_2O_3) BY HYDROTHERMAL DECOMPOSITION OF Fe-Na_4EDTA COMPLEX AT TEMPERATURES BETWEEN 140 ºC AND 200 ºC

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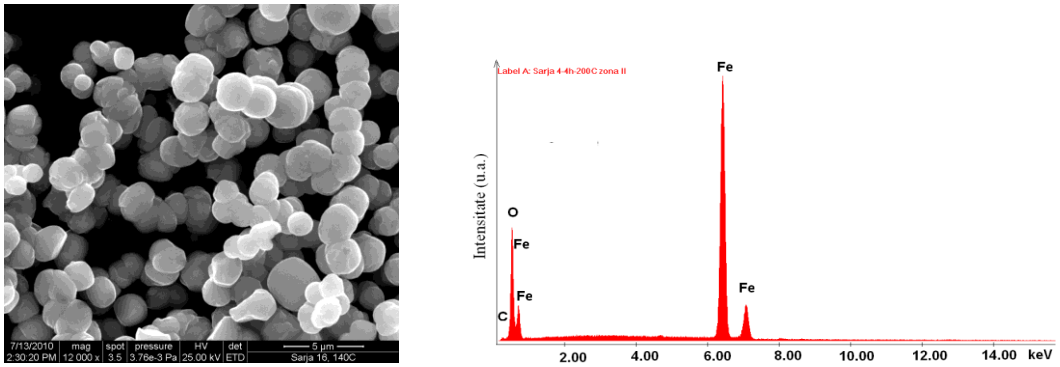
Continuing our previous studies [1,2], the present experimental procedure is focused on the hydrothermal decomposition of the Fe(II)-EDTA complex in the presence of urea at temperatures between 140ºC and 200ºC after 4 h of high pressure-temperature treatment time. Fe_2O_3 particles with dimensions between 1 and 2 micrometers were obtained. The experiments were repeated in identical concentrations by progressive decreasing temperature from 200ºC to 140ºC 20 to 20 degrees. The molar concentrations were identical in all cases. It was found that the lowest temperature at which the hematite synthesis process takes place is 140ºC.



a) *(b)*

Figure 1: SEM Images of micrometric Fe2O3 (a) and EDAX spectrum (b)

In the EDAX spectrum of these samples, only iron and oxygen maxima can be seen, which unequivocally indicates that the final product is pure Fe_2O_3, without traces of S, Na, C, N which could have resulted from the precursor's decomposition. The diffraction spectrum (not presented here) showed distinct maxima for hematite only.

Keywords: hematite, crystalline, micrometric.

References:

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