NEW APPROACH IN PHOSPHORUS DETERMINATION ON COMMERCIAL LECITHIN SAMPLES: ENERGY DISPERSE X-RAY SPECTROSCOPY, A FAST AND ACCURACY WAY.

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Lecithins are important components of many food products, due their activity as emulsifier and stabilizer. Commercial lecithins are composed mainly of phospholipids (PL), which are defined as the lipid molecules containing a phosphate molecule. The phospholipids quantification is commonly done by the inorganic phosphorus determination, which involves several steps, like acid digestion and incineration. The Energy-Dispersive Spectroscopy (EDS) has shown to be an inexpensive, fast and accurate technique for elementary composition of many type of samples. The aim of this work was to compare a standard AOCS method for inorganic phosphorus (IP) determination and the EDS elementary composition, for the phosphorus content of commercial lecithins. There were evaluated six commercial lecithin, provides from different industrial processes. The samples were analyzed in triplicate by the AOCS Standard Method Ca 55-12 (IP determination). The elementary composition were determined with an Bench Scanning Electronic Microscope coupled with an EDS system. The results showed a high correlation coefficient (0.9915) between the AOCS Standard Method and the EDS determination. The phosphorus content of each sample were coherently with the industrial process. It suggest that the phosphorus determination in lecithins can be done by EDS with no sample preparation, in a fast and accuracy way.