A simple, rapid and convenient method for the determination of heavy metals in food products by direct solid sampling-atomic absorption spectrometry has been described. Many publications in slurry sampling-electrothermal atomic absorption spectrometry were reviewed and categorized. In this work, suspensions were prepared in boiled tapioca flour suspension for the analysis of Cd, Cu and Pb in cockle, crab, shrimp and tunasamples. Stability of seafood slurries in 2% and 3% tapioca media was observed. The maximum allowable ashing temperature for three analyte elements in seafood slurries, using Pd as a Chemical modifier, were investigated. The method was statistically proved to be in agreement with the conventional solution-atomic absorption spectrometry based on sample digestion prior to analysis.