This study aimed to quantify the mineral nutrients and vitamin E in oleaginous fruits: raw and roasted and salted pistachios, almonds, cashew nuts, and raw hazelnuts, Brazil nuts, pecans, macadamia nuts and walnuts. The minerals Ca, Fe, K, Mn, Mg, Cu, Se and Zn were quantified by atomic absorption spectrophotometry and α, δ and (β+γ)-tocopherol (vitamin E) isomers, by high efficiency liquid chromatography. The total Vitamin E activity was calculated (α-TE). Significant quantities of most minerals were found in 100 g of nuts, some above the recommended Daily Intake (RDI) given in Resolution RDC 269 from the ANVISA (Brazilian Health Surveillance Agency). In comparison to the RDI, the zinc content was high (>65%) in all the nuts, except macadamia nuts (25% of the RDI). Selenium values were above the RDI in decreasing order: Brazil nuts > macadamia nuts > cashew nuts > pecan nuts > almonds > pistachios > hazelnuts > walnuts. Almonds presented the highest concentration of α-tocopherol (50% RDI), followed by the hazelnuts (30% of RDI), Brazil nuts, pistachios, pecans, cashew nuts, walnuts and macadamia nuts. Only the hazelnuts, almonds, and macadamia nuts did not contain (γ+β)-tocopherols and only the pecan nuts and walnuts had δ-tocopherol, which was at low concentrations. In conclusion, most of the oleaginous fruits studied are excellent sources of Se and Zn and Vitamin E. There was no significant difference between raw and roasted and salted nuts.