

Nano-suspensions of an Olive Triterpenoid with Antidiabetic Activity

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Oleanolic acid is a pentacyclic triterpene present in the olive tree, widely investigated for its biological activity, especially its recognized antidiabetic activity, either “in vitro” or “in vivo” tests. The oleanolic acid solubility in water is extremely low, being a problem when oleanolic aqueous formulations are necessary. This work presents a method for the preparation of oleanolic nano-suspensions using the crushed crystals of this terpene obtained from the olive leaf. The prepared formulations were studied; the particle size and zeta potential were determined using the Zetasizer Nano Zs Analyzer. Oleanolic acid concentration was analyzed by HPLC using internal standard. The results indicate the effectiveness of the procedure. Total results ranged between a 93.4 and 78.2% of oleanolic acid nano-particles, with a particle size of 139.2 and 248.2 nm, respectively. The aggregates, produced in the course of crunching, ranged between 6.6 % exceeding 3000 nm and 21.8% over 4000 nm. Aggregates were removed by filtration. The oleanolic acid nano suspensions were unstable, presenting a potential Z between – 10.52 and - 7.98 mV. Subsequent to the incorporation of appropriate surfactant, the potential Z ranged between 10 and 30 mV.