Abstract

In this present work, the aim is to evaluate the effect of different times of ultrasound pretreatment prior to hydrodistillation (US-HD) on the yield, chemical composition and antioxidant activity of essential oils of two wild *Lavandula stoechas* L. from the North of Algeria. The results indicate that ultrasound treatment engenders a rapid release of essential oils (1.59 %) recovery after only 10 min of sample of Adekar treated by ultrasound and followed by 90 min of hydrodistillation (HD) versus 180 min of hydrodistillation of untreated sample (1.17 %). However, the yields of Keddara sample treated by 45 min versus untreated samples were 0.87 % versus 0.62 %. 94.30 % and 88.26 % of total compounds were identified using chromatographymass spectrometry (GC-MS) in samples of Adekar and Keddara treated by ultrasound versus untreated samples (92.64 % and 88.75 % respectively). A difference in chemical composition between the essential oils of the two harvesting sites and between the extracts obtained by HD and by US-HD was found. The percentage of the most of the major compounds (fenchone, camphor, 1,8-cineole, bornyl-acetate, myrtenyl-acetate and viridiflorol) and other compounds identified is higher in treated *L. stoechas* L. than untreated *L. stoechas* L. The study of antioxidant power was carried out by 2, 2 diphenyl-1-picrylhydrazyl (DPPH) method. The results showed that antioxidant power of treated samples is superior to antioxidant power of untreated samples. Antioxidant activity of both samples (treated and untreated) is less effective compared with antioxidant activity of ascorbic acid.