

### Pharmacological and Biological Activities

The antioxidant activity of the phenolic constituents (Benhammou *et al.*, 2007; Peksel, 2008; Yousfi *et al.*, 2009), the oil or its unsaponifiable matter (Farhoosh *et al.*, 2008, 2011; Sharif *et al.*, 2009) and the essential oil (Gourine *et al.*, 2009, 2010b,c; Miguel, 2010) of *Pistacia atlantica* has been reported. The antioxidant activity expressed as butylated-hydroxyanisole equivalent antioxidant capacity of the essential oil (0.13% v/w) obtained from the leaves of *Pistacia atlantica* from Algeria, has a value of  $8.73 \pm 0.3$  mM which means that the oil is much more active than butylated-hydroxyanisole (Gourine *et al.*, 2009). The antioxidant activity of *Pistacia atlantica* essential oil of male and female leaf essential oils of *Pistacia atlantica* were observed during the season. The highest antioxidant capacity to scavenge free radicals was reached in the month of June for male oils and during the months of September-October for the female oils. The high reducing power for male oil was observed during the month of June and for the female oil it was in August. The female oil was more active than the male oil. The antioxidant capacity of the female oil was almost ten times higher than ascorbic acid (Gourine *et al.*, 2010b). The decoction prepared from the leaves of *Pistacia atlantica* is good sources of compounds with antioxidant properties while extract exhibited strong reducing power, free radical scavenging activity and total antioxidant activity (Peksel, 2008). Both methanolic and ethyl acetate extracts of young leaves of *Pistacia atlantica* exhibited relative lower level of anti-acetylcholinesterase activity as compared to synthetic antioxidants such as butylated hydroxyanisole, butylated hydroxytoluene and  $\alpha$ -tocopherol. The acetylcholinesterase inhibitory effect of the ethyl acetate extract was higher than the inhibitory effect of the methanolic extract. Accordingly, the extracts of the young leaves may be a potential antioxidant supplement for food and pharmaceutical products. It might also be used to stabilize the foods against oxidative deterioration (Peksel *et al.*, 2010). Regardless hydrocarbons fraction, the whole unsaponifiable matter (USM) of bene hull oil, and all fractions had the EC<sub>50</sub> (mg/mL) value significantly lower than (USM, 0.99; tocopherols, 1.05; carotenoids, 3.93; triterpenoids, 1.74-9.89) that of  $\alpha$ -tocopherol (36.7).  $\alpha$ -Tocopherol, the whole USM, and all fractions were able to increase significantly the stability of sunflower oil at 50 °C, so that the highest stabilizing effect belonged to the USM fractions with no significant differences amongst them, followed by the whole USM and  $\alpha$ -tocopherol (Farhoosh *et al.*, 2011). The antioxidant (expressed as ascorbic acid equivalent antioxidant capacity) of 34 samples of leaves of *Pistacia atlantica*,