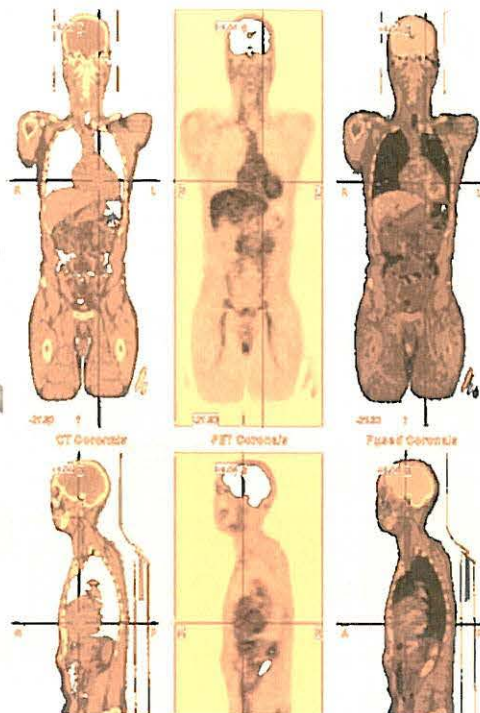
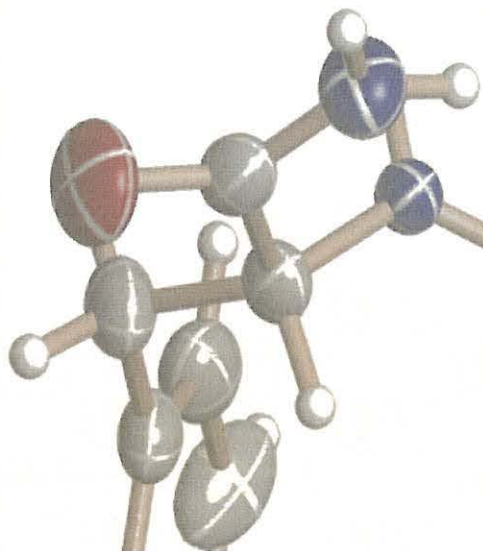


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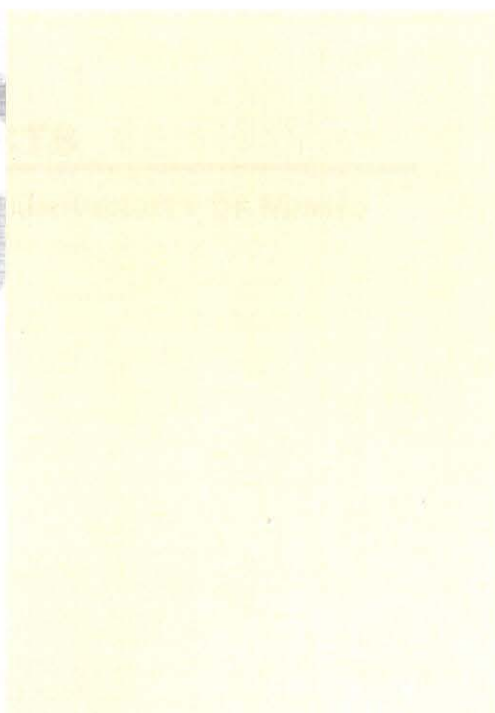
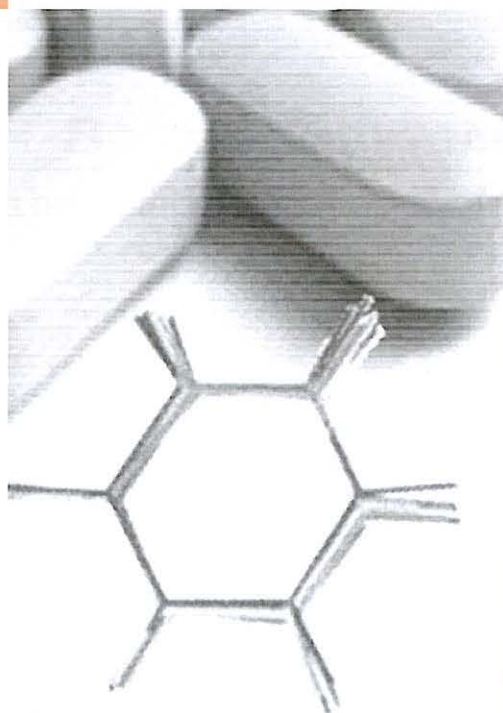
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A comparative study of bioactive properties of wild and commercial *Achillea millefolium* L.

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Achillea millefolium L., commonly known as yarrow, is a medicinal plant with high bioactive value. Its infusion, decoction and alcoholic extract are widely used in Europe to treat digestive and intestinal problems, but also due to their antitumor, antimicrobial, anti-inflammatory and antioxidant properties [1]. In the present work, methanolic extract, infusion and decoction of wild and commercial yarrow were studied for their antioxidant properties and antitumor potential, evaluated by free radicals scavenging activity, reducing power and lipid peroxidation inhibition and by estimation of the growth inhibitory activity in human tumor cell lines, respectively. Overall, cultivated yarrow showed the highest antioxidant activity, presenting the lowest EC₅₀ values. Decoctions of both samples revealed the highest DPPH scavenging activity (0.25 and 0.20 mg/mL, respectively), β-carotene bleaching inhibition (0.18 and 0.22 mg/mL) and TBARS inhibition (0.04 and 0.08 mg/mL), while infusions presented the highest reducing power (0.12 and 0.13 mg/mL). The samples showed a higher lipid peroxidation inhibition, but a lower DPPH scavenging activity than methanolic extract of *A. millefolium* from Turkey (892.67 and 45.60 μg/mL, respectively) [2]. The infusion of wild yarrow showed the highest potential against breast (MCF-7; GI₅₀=17.04 μg/mL) and hepatocellular (HepG2; 37.60 μg/mL) carcinoma cell lines, while the methanolic extract of commercial yarrow was most potent against non-small cell lung (NCI-H460; 26.64 μg/mL), colon (HCT-15, 13.90 μg/mL) and cervical (HeLa, 19.68 μg/mL) carcinoma cell lines. The results obtained with the decoction and infusion of cultivated yarrow against MCF-7 line are consistent with the ones reported with ethanolic extract of *A. millefolium* from Iran (GI₅₀=64.078 μg/mL) [3]. This is a groundbreaking study on the comparison of different extracts of *A. millefolium*, showing that medicinal plants can be used not only in traditional medicine but also as a source of bioactive products, namely antioxidants and antitumorals.

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