

Bioactive compounds identification and antibacterial activity of the essential oil of chamomile and yarrow species

Banaz Mahmood
Plymouth University, UK

Chamomile (*Matricaria chamomilla* L.) and yarrow (*Achillea millefolium* L.) contain a range of bioactive compounds. The majority of bioactive compounds are terpenoids, phenols and flavonoids. In fact, these compounds are mainly responsible for their pharmaceutical properties and they act as anti-inflammatory and anti-hemorrhagic. Furthermore, plants produce these compounds to protect themselves against pathogenic microorganisms and abiotic stresses. Solvent extraction of bioactive compounds from plant materials such as: Leaves and flowers is an essential first step in the study of medicinal plants. Subsequently, the quantitative and qualitative testing is also an important step in the identification of these compounds using HPLC and GC/FID. Extraction process was carried out by a Soxhlet and shaking extractions using methanol and hexane as solvents, the process was achieved to compare the extraction quality between both solvents. The results of chamomile leaves HPLC analysis indicated that chlorogenic acid was isolated at 6.043 min as a major phenolic compound. However, chlorogenic acid and apigenin-7-O-glucoside were dominated in yarrow leaves as phenolic and flavonoid compounds at 6.040 min and 7.647 min, respectively. Moreover, the flower tissue essential oils were analyzed by GC-FID method. The main terpenoid components found in both chamomile and yarrow species extracted by Soxhlet and shaking extractions were bisabolol oxide A, chamazulene, farnesene, umbelliferone and limonene at different retention times. Furthermore, the antibacterial activity of the chemical compounds found in chamomile flower essential oil can reduce the growth of *Porphyromonas gingivalis* and *Bacillus cereus*. In addition, bioassays essential oils extracted from yarrow showed that the gram positive bacteria (*Staphylococcus aureus* and *Bacillus cereus*) were more resistant to the oil with 3-4.5 mm inhibition zones. However, the greatest activity against gram negative bacteria was detected in *Escherichia coli* (20.4 mm inhibition zone). The aim of this work was to explore the possible inhibitory effect of the chamomile and yarrow methanolic flower extracts on the growth of some gram positive and gram negative bacteria strains.

Biography

Banaz Mahmood has completed her BSc and MSc from University of Sulaimani. She is pursuing her PhD in Biology at the University of Plymouth. She has published one paper in *IJBBB* journal.

banaz.mahmood@students.plymouth.ac.uk

Notes: