

Pharmaceutical Biotechnology

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ANTIBACTERIAL SCREENING OF ACTIVE ETHANOLIC FRACTIONS OF URTICA DIOICA L AGAINST PATHOGENIC BACTERIA FROM GASTROINTESTINAL AND RESPIRATORY TRACT

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Medicinal plants are largely explored source of drug repository. Although a huge number of antibiotics are available for treatment of microbial infections, development of resistance mechanism against antibiotics is nowadays a major health concern. Therefore the needs of discover new antimicrobial compounds with high safety index is always recurrent and medicinal plants have great potential for providing novel drug leads with novel mechanism of action. Historically, this plants have always been a source of inspiration for new drug compounds. In this context we evaluate the antimicrobial potential of various extracts (produced by a partial purification in a silica gel column) of *Urtica dioica* L (stinging nettle) (Urticaceae) collected from Vila Real region (Portugal), against 10 different bacteria isolates collected from clinical patients (gastrointestinal segments and respiratory tract), namely 4 Gram positive [2 *Staphylococcus aureus* (MRSA), *Staphylococcus aureus* (MSSA), *Staphylococcus saprophyticus*, and *Enterococcus faecalis*] and 5 Gram negative [*Salmonella thyphi*, *Echerichia coli*, *Klebsiela pneumoniae*, *Pseudomonas aeruginosa* and *Proteus mirabilis*]. The current study represents the investigation of antimicrobial activity of *U. dioica* from four fractions (Hexane, Ethyl–acetate, ethanol and water) that were prepared using sequential fractionating method by column chromatography. The antibacterial activity was assessed by disk diffusion and minimum inhibitory concentration methods. The phytochemical composition of *U. dioica* fractions were assessed by HPLC–UV–DAD. Our results showed that only ethanolic fractions had antibacterial activity but only in *S. aureus* (MRSA and MSSA), *S. saprophyticus* and *E. faecalis* isolates. Thus, only the Gram positives were affected by *U. dioica* extracts. The inhibition zone diameter halos ranges from 0 to 23 mm and the minimum inhibitory concentration (MIC) were 6.25 mg.mL⁻¹ for MRSA isolates and 0.78 mg.mL⁻¹ for *S. saprophyticus* and *E. faecalis*. Our results show a direct association between the antibacterial activities and high content of phytochemicals detected in the ethanolic fractions particularly with phenolic acids (chlorogenic and ferulic acids) and flavonols (rutin, isoquercetin and quercetin isomers). Our observations suggest the importance of ethnomedicinal use of *U. dioica*, which could be used by the pharmaceutical industry as source of a natural antimicrobial agents and antioxidant compounds.