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Screening of some commonly used plant extracts for their effects on some gut pathogens and probiotics

Samah O Noor
King Abdulaziz University, KSA

Background: All surfaces of human body were colonized by many microbial communities but gut is colonized in greater densities known as the microbiota or commensal microflora which is mainly influenced by the plant extracts in the diet.

Materials & Methods: In this study, 4 different plant materials, the leaves of *Camellia sinensis*, *Mentha piperita* and *Petroselinum crispum* in addition to the *Pimpinella anisum* seeds were collected and extracted with either hot water or methanol. The antimicrobial activity was determined using agar well diffusion method.

Results: All the extracts showed antibacterial activity against some bacterial pathogens, *Escherichia coli*, *Salmonella typhimurium*, *Pseudomonas earuginosa*, *Enterococcus faecalis*, *E. faecium Staphylococcus aureus* and *Streptococcus agalactiae* which was used as a control. The water and methanol extract of *Camellia sinensis* and the water extract of *Pimpinella anisum* and *Petroselinum crispum* showed significant lower antibacterial activity against all the tested probiotic bacteria *Lactobacillus* and *Bifidobacteria*. MICs values of the water extracts of the 4 tested plants were recorded for the test bacterial pathogens in addition to the tested probiotic bacteria. Concerning the pathogenic bacteria, MIC was ranged from 50-250 µg/ml, 100-150 µg/ml, 150 µg/ml and 75-125 µg/ml for *Camellia sinensis*, *Pimpinella anisum*, *Petroselinum crispum*, respectively. Concerning the probiotics, the MIC of the 4 tested plants was greater than 250 µg/ml except for L. *plantarum*, where the MIC of *Camellia sinensis* was 250µg/ml. The presence of plant extracts slightly decrease the rate of growth L. acidophilus and the decrease was clear in case of *Camellia sinensis>Mentha piperita>Pimpinella anisum>Petroselinum crispum.*

Conclusion: Some plant extracts affect significantly the pathogenic bacterial growth but the effect was lower on some gut bacteria, thus they can be used safely to improve human health.

Biography

Samah O Noor has completed her PhD from University of East Angelia, UK in 2010. Since then, she works as an Assistant Professor, and has been the Vice Dean of Post-graduate studies and Research in the Faculty of Science, at King Abdulaziz University. She has a team of post-graduate students who are working and publishing on the antibiotic effect of natural products and there safety on the body normal flora.

samah_noor@hotmail.com

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