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Synergistic antibacterial potential and total bioactive component determination of *Elettaria cardamomum*, *Piper nigrum* and *Syzygium aromaticum*

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Spices are considered as rich source of bio-active antimicrobial compounds and are indispensable components of cuisines worldwide. They have been used since long to enhance the flavor and aroma of our foods. Besides, they also produce several medicinal effects and are used in treating various clinical ailments. To provide a scientific basis to traditional uses of *Elletaria cardamomum, Syzygium aromaticum* and *Piper nigrum*, their seed extracts as well as isolated phyto-constituents and combinations were evaluated for their antibacterial and antioxidant potential. Total phenol, flavonoid, condensed tannins and saponin contents were also measured. Organic extracts of all three spices showed good antibacterial activity against all the test strains, which was found to be comparable with standard antibiotics. Minimum inhibitory concentration for aqueous and organic seed extracts ranged from 25 to >50 mg/ml and 2 to 50 mg/ml respectively. Among the different extracts evaluated for DPPH free radical scavenging, ethanolic extract of S. *aromaticum* exhibited the highest inhibition with the IC50 value of 42±7.4 µg/ml. This high radical scavenging activity can be directly correlated with the presence of high total phenolic content (310±6.87 mg GAEs/g extract) possessed by the extract. Inhibitory activity of all the extracts was found to be increased, when used in combination. These findings suggest that these spices enhanced the functionality of the food in which they are used by effectively influencing their antioxidant and antibacterial potential.

Biography

Varsha Mehra has completed her PhD from University of Delhi, India. She is currently an Assistant Professor in the Department of Biomedical Science, Shaheed Rajguru College of Applied Sciences for Women, India. She has a few publications in reputed international journals and currently engaged in research project on finding efficacious plant based drugs against *Mycobacterium tuberculosis*.

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