Yerba Mate (*Ilex paraguariensis*) a Potential Food Antibacterial Agent and Combination Assays with different classes of Antibiotics

Elie Fayad[1], Lamia Azizi[2], Roula M. Abdel-Massih[1]
[1] Department of Biology, Faculty of Sciences, University of Balamand, Lebanon.
[2] Laboratory of Microbiology, Faculty of Medicine and Medical Sciences, University of Balamand, Lebanon.

Yerba Mate, *Ilex paraguariensis*, is used in the preparation of infusions in South America and in some areas within the Middle East. In the present work, the antibacterial activity of the dialyzed aqueous extract of commercial leaves of Mate was tested against Gram negative and Gram-negative bacteria. Antibacterial activity was observed against all tested strains, with a greater activity against Gram-positive bacteria.

Further studies were performed on reference strains and clinical isolates of *Staphylococcus aureus*. The MIC of the aqueous extract ranged between 1.25 and 2.5 mg/ml. Checkerboard synergy tests were done to study the synergism/antagonism between Yerba Mate and different antibiotics. Mate extract showed no synergy with Cefotaxime and Ciprofloxacin for most of the tested strains, with a few showing an additive effect. Gentamicin showed antagonism with a number of strains; as for Clarithromicin, almost all the strains showed an additive effect between the Mate extract and the antibiotic. A more in-depth analysis to identify the active molecule responsible for this activity is important for a better understanding of the potential role of Yerba Mate in developing new antibacterial agents and in elucidating its interactions with antimicrobial agents used in the clinical setting.

Biography

Roula Abdel-Massih received her Ph.D. in Biological Sciences from the University of Glasgow, U.K. in 2001. She served as the Chair of the Department of Biology, from 2008-2011. She obtained a Certificate of Completion for the Art and Practice of Leadership Development Program (May 2016) at Harvard.
She was elected as a TWAS Young Affiliate from 2011 to 2015, selected by The New York Academy of Sciences and the STS to participate in the 2015 Future Leaders program in Japan and was elected as an education fellow in the National Academies in the Life Sciences (2015-2016).

Her primary research focus is on the identification of biologically active plant components (anti-proliferative, anti-bacterial…).

Presenting author details
Full name: Roula M. Abdel-Massih
Contact number: +9613684626
Twitter account:
Linked In account: Roula Abdel-Massih

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