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21722 | Exploring Actinobacterial Diversity in *Ruta graveolens*: Phylogenetic Identification and Bioactive Potential Investigation

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Background & Aim: Medicinal plants and their components have been utilized in traditional medicine for centuries and have significantly influenced the development of modern medicine [1]. *Ruta graveolens*, a Rutaceae medical plant, is known for its antibacterial, anti-inflammatory and cytotoxic properties [2]. Actinobacteria are a rich source of compounds exhibiting diverse biological activities and potential therapeutic applications [3]. The aim of this study was to perform the phylogenetic identification of a collection of actinobacterial strains previously isolated from *R. graveolens* and to investigate their bioactive potential. **Methods:** Actinobacterial strains previously isolated from stem, roots and leaves of *R. graveolens* were grown in Actinomycete Isolation Agar (AIA) or Starch-Casein-Nitrate-Agar (SCN). DNA from grown cultures was extracted and phylogenetically identified through 16S rRNA gene sequencing. For each strain, organic extracts were performed and used for the screening of antimicrobial activity, using the disk diffusion test, against four reference bacteria (*Staphylococcus aureus*, *Bacillus subtilis*, *Salmonella typhimurium*, *Escherichia coli*) and one yeast (*Candida albicans*). **Results:** Thirty-two actinobacterial isolates were so far identified. Most of the strains was identified as *Tsukamurella tyrosinosolvens,* constituting 13 out of 32 isolates, followed by 8 *Streptomyces sp*., 7 *Brevibacterium sediminis*, 3 *Microbacterium ginsengiterrae*, and one *Gordonia hydrophobica*. The organic extracts obtained from each isolate were tested for their antimicrobial activity. Up to moment, no significant bioactivity was detected in the reference strains screened in this study. **Conclusions:** A collection of 32 actinobacterial strains was obtained from various parts of the medicinal plant *R. graveolens*. Though no relevant antimicrobial activity was yet found, extracts of these actinobacteria open new opportunities to explore their bioactive potentials with therapeutic applications.

Keywords: Actinobacteria, Medicinal Plant, Bioactivity, *Ruta Graveolens*, Endophytes.

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