

Title: ANTIBACTERIAL ACTIVITY OF RESINS FROM *Araucaria angustifolia*

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Abstract:

Araucaria angustifolia is found at upland of Rio Grande do Sul, Santa Catarina and Paraná States. This species offers many wooden and no-wooden products, such as resins obtained from bark. These resins are used to make syrup for bronchitis treatment, and the bark immersed with alcohol is used for dermatological diseases, rheumatism, inflammation and bacterial infection. Some pharmacological activities were verified for this specie, as antineoplastic, antimicrobial, antifungal and antiviral, which may be associated to the flavonoids compounds, lignins, terpenes and lecithins. This way, this study aimed to evaluate the antimicrobial activity of red and yellow resins from *Araucaria angustifolia*. Resins were collected of *Araucaria*'s barks in the State of Paraná and provided by the Laboratory of Chromatography and Natural Products (CRONAT) at the State University in the Midwest (UNICENTRO)/PR. The antimicrobial activity was tested against gram-positives bacteria: *Staphylococcus aureus* ATCC 6538, *Staphylococcus epidermidis* ATCC 12228 and gram-negative: *Pseudomonas aeruginosa* ATCC 25853 and *Escherichia coli* ATCC 8939. Yellow and red *Araucaria* resins were diluted in 10% DMSO and the antimicrobial activity was performed using microdilution assay with Resazurin staining to obtain the minimum inhibitory concentration (MIC). The Minimum Bactericidal Concentration (MBC) was obtained by counting the colony forming units. Our data showed that the red resin had a better antimicrobial activity against gram positives bacteria compared to yellow resin. MIC and MBC values for the red resin against *S. aureus* were 6.2 mg mL⁻¹ and 12.5 mg mL⁻¹, respectively. For the yellow resin, the MIC and MBC values were 12,5 and 100 mg mL⁻¹, respectively. For *S. epidermidis*, the red resin had MIC and MBC of 12, 5 mg mL⁻¹, while to yellow resin, the MIC and MBC were of 100 mg mL⁻¹. On the other hand, both resins were not effective against gram-negatives bacteria *in vitro*, because they had MIC and MBC values above of 100 mg mL⁻¹ against the strains of *E. coli* and *P. aeruginosa*. From these data, we conclude that both resins showed antibacterial action against gram-positive bacteria, but the red resin was more effective than the yellow resin. It can be explained by a probable qualitative and quantitative difference in composition between the two resins.

Keywords: antibacterial activity, *Araucária angustifolia*, resins

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