

## Chemical and Biological Studies of *Kielmeyera coriacea* Mart. (Calophyllaceae) Based on Ethnobotanical Survey of Rural Community from Brazil

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**Abstract :** One of the biomes present in Brazil is known as Cerrado, which is a vast tropical savanna ecoregion, particularly in the states of Goiás, Mato Grosso do Sul, Mato Grosso, Tocantins and Minas Gerais. Many species of plants are characterized as endemic and they have therapeutic value for a large part of the population, especially to the rural communities. Given that, the southeastern region of the state of Goiás contains about 21 rural communities, which present a form of organization based on the use of natural resources available. One of these rural communities is named of Coqueiros, where the knowledge about the medicinal plants was very important to this research. Thus, this study focuses on the ethnobotanical survey of this community on the use of *Kielmeyera coriacea* to treat diseases. From the 37 members interviewed, 76% indicated this species for the treatment of intestinal infection, leukemia, anemia, gastritis, gum pain, toothache, cavity, arthritis, arthrosis, healing, vermifuge, rheumatism, antibiotic, skin problems, mycoses and all kinds of infections. The medicinal properties attributed during the interviews were framed in the body system (disease categories), adapted from ICD 10; thus, 20 indications of use were obtained, among five body systems. Therefore, the root of this species was select to chemical and biological (antioxidant and antimicrobial) studies. From the liquid-liquid extraction of ethanolic extract of root (EER), the hexane (FH), ethyl acetate (FAE), and hydro alcoholic (FHA) fractions were obtained. The chemical profile study of these fractions was performed by LC-MS, identifying major compounds such as  $\delta$ -tocotrienol, prenylated acylphoroglucinol, 2-hydroxy-1-methoxyxanthone and quercitrin. EER, FH, FAE and FHA were submitted to biological tests. FHA presented the best antioxidant action (EC50 201.53  $\mu\text{g mL}^{-1}$ ). EER inhibited the bacterial growth of *Streptococcus pyogenes* and *Pseudomonas aeruginosa*, microorganisms associated with rheumatism, at Minimum Inhibitory Concentration (MIC) of 6.25  $\mu\text{g mL}^{-1}$ . In addition, the FH-10 subfraction, obtained from FH fractionation, presented MIC of 1.56  $\mu\text{g mL}^{-1}$  against *S. pneumoniae*; EER also inhibited the fungus *Candida glabrata* (MIC 7.81  $\mu\text{g mL}^{-1}$ ). The FAE-4.7.3 fraction, from the fractionation of FAE, presented MIC of 200  $\mu\text{g mL}^{-1}$  against *Lactobacillus casei*, which is one of the causes of caries and oral infections. By the correlation of the chemical and biological data, it is possible to note that the FAE-4.7.3 and FH-10 are constituted 4-hydroxy-2,3-methylenedioxy xanthone, 3-hydroxy-1,2-dimethoxy xanthone, lupeol, prenylated acylphoroglucinol and quercitrin, which could be associated with the biological potential found. Therefore, this study provides an important basis for further investigations regarding the compounds present in the active fractions of *K. coriacea*, which will permit the establishment of a correlation between ethnobotanical survey and bioactivity.

**Keywords :** biological activity, ethnobotanical survey, *Kielmeyera coriacea* Mart., LC-MS profile

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