Antimicrobial activity of the essential oil from the leaves of Croton cajucara Benth.

M Azevedo 1, H Bizzo 2, F Chaves 3, P Angelo 4, D Alviano 4, C Alviano 4

1 Rio de Janeiro Federal University, Institute of Chemistry, Avenida Athos da Silveira Ramos, 149 Bloco A - Cidade Universitaria, 21941-909 Rio de Janeiro, Brazil
2 Embrapa Food Technology, Avenida das Americas, 29501, 23020470 Rio de Janeiro, Brazil
3 Embrapa Western Amazon, Rodovia AM-10, Km 29 Caixa Postal 319, 69010-970 Manaus, Brazil
4 Rio de Janeiro Federal University, Institute of Microbiology, Centro de Ciências da Saúde - Bloco I Cidade Universitária - Ilha do Fundão, 21.941-590 Rio de Janeiro, Brazil

_Croton cajucara_ Benth. (family Euphorbiaceae), locally known as „sacaca”, is a very important plant resource in the Amazon area, being used in folk medicine against gastrointestinal and liver disorders, diabetes and for cholesterol reduction. Several biological effects have been associated to cleordanes present in leaves and bark infusions [1]. A germplasm bank was established for agronomic studies of this species with individuals collected from different areas of the Amazon. Two morphotypes were identified, namely white sacaca and red sacaca. From chemical studies, the essential oils of these plants could be classified in two groups: one rich (up to 45%) in linalool [2], and other containing (up to 44%) of an aromatic sesquiterpene, isolated and identified by NMR as 7-hydroxycalamenene [3]. It was shown that the linalool rich oil is active against _Leishmania amazonensis_ [4] and oral planktonic microorganisms [5]. Herein we present some results on the antimicrobial activity of the essential oil rich in 7-hydroxycalamenene. Minimum inhibitory concentration (MIC) was evaluated in triplicate according standard methods from the National Committee for Clinical Laboratory Standards (CLSI/NCCLS). Growing inhibition was observed for _Mycobacterium smegmatis_, _M. tuberculosis_ (H37Rv), methicillin resistant _Staphylococcus aureus_ (MRSA, BMB9393) and _Rhizopus oryzae_. The calculated MIC's were 156µg/mL for _M. smegmatis_, 4.9µg/mL for _M. tuberculosis_, 0.0012µg/mL for the MRSA and 0.15µg/mL for _R. oryzae_. From the bioautography test, the activity was associated to the presence of 7-hydroxycalamenene in the oil. The results observed were related to an essential oil containing 33% of 7-hydroxycalamenene.

Acknowledgements:CAPES, FAPERJ.

3. Quadros AP et al., unpublished results.