

Natural products with antileprotic activity

Anna Cláudia de Andrade Tomaz (PG)*, Francisco A. do Nascimento-Júnior (PG), Marcelo Sobral da Silva (PQ), Petrônio Filgueiras de Athayde-Filho (PQ), Emídio Vasconcelos Leitão da Cunha (PQ), José Maria Barbosa-Filho (PQ)

Laboratório de Tecnologia Farmacêutica, Universidade Federal da Paraíba, Caixa Postal 5009, 58051-970, João Pessoa, Paraíba, Brazil

* anninha_cg@yahoo.com.br

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Introduction

Over than 5 million people around the world are infected with *Mycobacterium leprae*. Hansen's disease is more frequently in Asia, Africa, Latin America, and Pacific Islands. Many Hansen cases in developed countries affect people who have emigrated from developing countries. Brazil has the second biggest number of leprosy cases around the world with almost 30,000 new cases diagnosed in December 2005^{1, 2}. Over the last 20 years, a series of health policy reforms have been implemented in Brazil with the objective of decentralizing preventive health measures and basic services to the primary care network. One of the most important changes has been the introduction of the Community Health Agent-*Programa de Agentes Comunitários de Saúde* (PACS) and Family Health Programmes-*Programa de Saúde da Família* (PSF). During this period, Hansen's disease control has been integrated into the restructured Brazilian basic health system, a strategy that is considered effective and efficient in all national contexts³. In this work we present such natural products, in other words, plant extracts, chemically defined molecules isolated from plants and metabolites from fungi and bacteria that act specifically inhibiting the microorganism *Mycobacterium leprae* development, so that discussion and new research on the area can be done. For this purpose 63 references were consulted.

Results and Discussion

The keywords used for this review were leprosy, natural products, and plants. The search perfound using Chemical Abstracts, Biological Abstracts and the data bank NAPRALERT, updated to December 2006. The references obtained were later consulted. Consultation of various types of literature sources resulted in elaboration of a list of 11 plants evaluated specifically for *Mycobacterium leprae* inhibition. For details on the models or mechanism-based bioassays utilized for selecting plant extracts against *Mycobacterium leprae*, the original references should be consulted. The plants are listed in alphabetical order of scientific name, family, country, used part,

dose, tested organism, result and references. We founded 17 chemically defined natural molecules reported in the literature which have been identified as antileprotic activity; but only four, viz. chaulmoogric acid, fusidic acid, rifampicin, and claritomicin, are currently clinically used in the chemotherapeutic treatment of leprosy. The main compounds which have been isolated and identified belong to the class of lipids (5), triterpenes (4), macrolides (2), alkaloid (1), benzenoid (1), flavonoid (1), matansinoid (1), proteid (1), and sulfur compound (1).

Conclusions

This work aimed at searching for literature available data about plants and natural products that present antileprotic activity. It could be observed that they played an important role as efficient therapeutic path against leprosy centuries ago. This fact is not so different from nowadays because it is necessary the use of natural origin drugs to which no similar synthetic compound has been found in the main polychemotherapeutic regimens proposed by modern medicine for the confirmed disease cases.

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¹ WHO 2006. Leprosy situation in the WHO Region of the Americas. www.who.int/lep/situation/americas/en/print.html. Accessed in January 28th, 2006.

² Deps, P. D.; Guedes, B. V. S.; Bucker Filho, J.; Andreatta, M. K.; 3 Marcari, R. S.; Rodrigues, L. C. *Lepr. Rev.* **2006**, 77, 34-40.

³ Ramos Jr, A. N.; Heukelbach, J.; Gomide, M.; Hinder, D. C.; Schreuder, P. A. M. *Lepr. Rev.* **2006**, 77, 175-188.