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(71) Applicants: DEPARTMENT OF BIOTECHNOLOGY

[IN/IN]; Block-2, 6-8th Floors, CGO Complex, Lodhi Road, New Delhi 110 003 (IN). UNIVERSITY OF DELHI [IN/IN]; University of Delhi, New Delhi 110 007 (IN). THE STATE OF OREGON ACTING BY AND THROUGH THE STATE BOARD OF HIGHER EDUCATION ON BEHALF OF OREGON STATE UNIVERSITY [US/US]; Office for Commercialization and Corporate Development, A312 KERR Administration Building, Corvallis, OR 97331-2140 (US).

(72) Inventors: LAL, Rup; Room No. 115, Molecular Biology

Laboratory, Department Of Zoology, University Of Delhi, New Delhi 110 007 (IN). MAHMUD, Taifo; Department Of Pharmaceutical Sciences, College Of Pharmacy, Oregon

State University, 203, Pharmacy Building, Corvallis, OR 97331-350 (US).

(74) Agent: NAIR, Manisha Singh; Lex Orbis, Intellectual Property Practice, 709/710, Tolstoy House, 15 - 17, Tolstoy Marg, New Delhi 110 001 (IN).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: ANTIBACTERIAL COMPOUNDS AGAINST DRUG RESISTANT BACTERIA

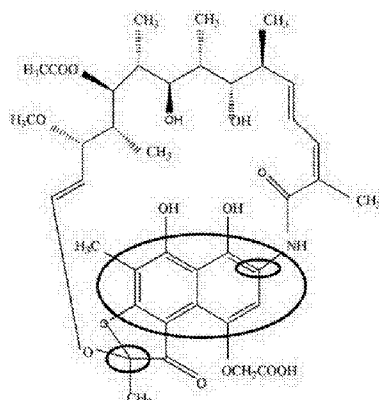


Figure 1: The chemical structure of rifamycin B. The ansa chain joins the naphthoquinone moiety at C-2 and C-12 (circled in black). The naphthoquinone moiety (circled in black) imparts reddish brown colour to the compound.

(57) Abstract: The invention relates to the production of rifamycin analogs against drug resistant bacteria. The invention also relates to antibacterial compounds against drug resistant mycobacteria. The invention also provides for pharmaceutical composition comprising antibacterial compound against drug resistant bacteria, particularly mycobacteria. The invention also provides for use of antibacterial compounds for the treatment of disease caused by bacteria and in particular mycobacteria.

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— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))* (88) **Date of publication of the international search report:**
5 March 2015

Published:

— *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2014/059989

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61K31/395 A61K31/4162 C07D498/00 C12P17/18 C12N1/20
 C12R1/01 A61P31/04 A61P31/06
 ADD.
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 A61K C12N C12P C12R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EPO-Internal, BIOSIS, EMBASE, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>"PROCEEDINGS OF THE NINETY NINTH SESSION OF THE INDIAN SCIENCE CONGRESS Bhubaneswar, 2012 PART II SECTION OF NEW BIOLOGY (Including Biochemistry, Biophysics & Molecular Biology and Biotechnology)",</p> <p>2012, XP055131525, Retrieved from the Internet: URL: http://www.isc2012.com/pdf/proceedings/new_biology.pdf [retrieved on 2014-07-24] pages 55-56: abstract 21</p> <p style="text-align: center;">----- -/--</p>	1-16

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search <p style="text-align: center;">25 July 2014</p>	Date of mailing of the international search report <p style="text-align: center;">26/11/2014</p>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer <p style="text-align: center;">Hoff, Philippe</p>
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2014/059989

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>XU JUN ET AL: "Identification of tailoring genes involved in the modification of the polyketide backbone of rifamycin B by Amycolatopsis mediterranei S699.", MICROBIOLOGY (READING, ENGLAND) AUG 2005, vol. 151, no. Pt 8, August 2005 (2005-08), pages 2515-2528, XP002727775, ISSN: 1350-0872 the whole document</p> <p style="text-align: center;">-----</p>	1-16
T	<p>A. NIGAM ET AL: "Modification of Rifamycin Polyketide Backbone Leads to Improved Drug Activity Against Rifampicin-Resistant Mycobacterium tuberculosis", JOURNAL OF BIOLOGICAL CHEMISTRY, 12 June 2014 (2014-06-12), XP055131532, ISSN: 0021-9258, DOI: 10.1074/jbc.M114.572636 the whole document</p> <p style="text-align: center;">-----</p>	1-16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2014/059989

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-16

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16

24-desmethylrifamycin S, 24-desmethylrifamycin SV,
24-desmethylrifampicin and 24-desmethylrifamycin B and their
use as antibacterial agents

2. claims: 17-22, 25-32

Novel strains of *Amycolatopsis mediterranei* S699; method of
preparing said strains; method for preparing novel
antibacterial compounds using said strains; a recombinant
nucleotide SEQ ID No.1; a vector construct comprising said
nucleotide sequence

3. claims: 23, 24

Method of preparing the 24-desmethylrifamycin derivatives of
24-desmethylrifamycin B
