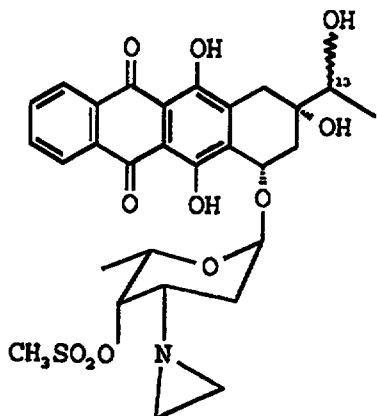




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <b>(51) International Patent Classification <sup>6</sup> :</b><br><b>C07H 15/252, A61K 31/70</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>A1</b> | <b>(11) International Publication Number:</b> <b>WO 99/52921</b><br><b>(43) International Publication Date:</b> 21 October 1999 (21.10.99)                                                                                                                                                                                                                                                                                                                                                                |
| <b>(21) International Application Number:</b> PCT/EP99/02567<br><b>(22) International Filing Date:</b> 9 April 1999 (09.04.99)<br><b>(30) Priority Data:</b><br>9808027.8                      15 April 1998 (15.04.98)                      GB<br><b>(71) Applicant (for all designated States except US):</b> PHARMACIA & UPJOHN S.P.A. [IT/IT]; Via Robert Koch, 1.2, I-20152 Milan (IT).<br><b>(72) Inventors; and</b><br><b>(75) Inventors/Applicants (for US only):</b> GERONI, Cristina [IT/IT]; Via Correggio, 48, I-20149 Milan (IT). RIPAMONTI, Marina [IT/IT]; Viale Fulvio Testi, 91, I-20162 Milan (IT). CARUSO, Michele [IT/IT]; Via Desiderio, 3, I-20131 Milan (IT). SUARATO, Antonino [IT/IT]; Via Degli Imbriani, 39, I-20158 Milan (IT).<br><b>(74) Common Representative:</b> PHARMACIA & UPJOHN S.P.A.; Viale Pasteur, 10, I-20014 Nervio (IT). |           | <b>(81) Designated States:</b> AU, BG, BR, CA, CN, CZ, HU, ID, IL, IN, JP, KR, LT, LV, MX, NO, NZ, PL, RO, SG, SI, SK, TR, UA, US, YU, ZA, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).<br><br><b>Published</b><br><i>With international search report.</i><br><i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> |
| <b>(54) Title:</b> 13-DIHYDRO-3'AZIRIDINO ANTHRACYCLINES<br><br><div style="text-align: center;">  <p>(I)</p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>(57) Abstract</b><br><br>Anthracycline glycosides of formula (I) wherein the wavy line means that the hydroxy group at 13-position may be at $\alpha$ or $\beta$ position, or a mixture thereof, are useful as anti-tumor agents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |