Microbiological and Chemical Transformations of Argentatin B

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Argentatin B is a naturally occurring tetracyclic triterpene isolated from Parthenium argentatum x P. tomentosa. It was microbiologically transformed to 16, 24-epoxycycloartan-3α, 25-diol, (isoargentatin D), by Nocardia corallina var. taoka ATCC 31338, Mycobacterium species NRRL B3683 and Septomyxa affinis ATCC 6737. The later microbe also produced 16, 24-epoxycycloartan-3β, 25-diol (argentatin D) and 1, 2-didehydroargentatin B, (isoargentatin D). Sodium hydroxide converted argentatin B to argentatin D and isoargentatin D. Hydrochloric acid treatment gave cycloartan-25-ol-3, 24-dione. Cerium sulfate/sulfuric acid/aqueous methanol induced scission of the isopropanol moiety and provided an isomeric mixture of 24-methoxy-25–27-trinorargentatin B. Oxidation of this isomeric mixture with pyridinium chlorochromate, selectively, attacked the isomer with the equatorial proton at position-24 to give the corresponding lactone, 24-oxo-25–27-trinorargentatin B. The produced compounds were characterized by spectroscopic methods.

Key words: Argentatin B, Biotransformation, Cerium Sulfate