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CHEMICAL CONSTITUENTS OF *Penicillium chrysogenum,* AN ENDOPHYTIC FUNGUS FROM *Strychnos toxifera*

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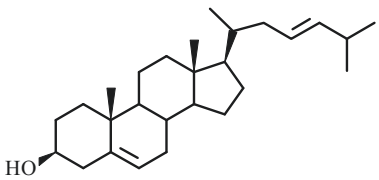
Strychnos toxifera is a poisonous plant used by Amazon indians in the manufacture of curare poison [1]. Its toxicity is clue to indole alkaloids, which are the major constituents of this poison [2]. Endophytes are considered outstanding and underexplored sources of novel chemically diverse and bioactive compounds. These microorganisms can be detected at a particular moment within the tissues of apparently healthy plant hosts, and they have been found in all plant species examined to date [3]. As they occupy unique biological niches, the complex web of interactions with other endophytes and with the host might give rise to new chemical diversity and bioactive compounds [4]. In the course of screening for biologically active agents from Amazonian endophytic fungi [5], *Penicillium chrysogenum,* an endophytic fungus from the trunk of *S. toxifera,* was chosen for further phytochemical investigation.

The MeOH extract of the mycelial mass from *P. chrysogenum* was subjected to chromatographic separation to afford four steroids [6] [ergosterol (**1**), brassicasterol (**2**), ergosterol peroxide (**3**), and cerevisterol (**4**)], two aromatic acids [7] [cinnamic acid (**5**) and *p*-hydroxybenzoic acid (**6**)], and three mycotoxins [8] [kojic acid (**7**), penicillic acid (**8**), and patulin (**9**)]. These compounds were obtained and characterized by a comparison of their physical and spectral data (UV, IR, NMR and MS), with values in the literature.

S. toxifera was collected from Manaus, Brazil in July, 2008. The strain of *P. chrysogenum* was obtained, purified, and identified from the healthy tissues of the trunk using a previous methodology [9]. After cultivation in liquid media [5], the mycelial mass (1.1 kg) was extracted with MeOH (3 × 500 mL) at room temperature, and a MeOH extract (30.4 g) was obtained upon concentration under reduced pressure. The MeOH extract was chromatographed over silica gel (600 g, 70–230 mesh) using *n*-hexane containing increasing amounts of EtOAc to obtain nine fractions. Fraction 1 (321.7 mg) was purified on a silica gel column with *n*-hexane–$CHCl_3$ with increasing gradient, yielding **1** (22 mg), **2** (7 mg), **3** (12 mg), and **4** (9 mg). Fraction 5 (507 mg) was subjected to silica gel chromatography with $CHCl_3$–MeOH with increasing gradient, yielding **5** (4 mg), **6** (11 mg), **7** (89 mg), **8** (9 mg), and **9** (5 mg).



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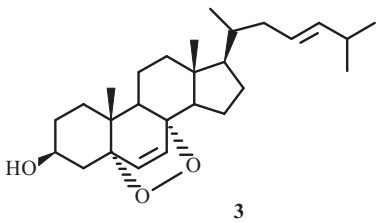

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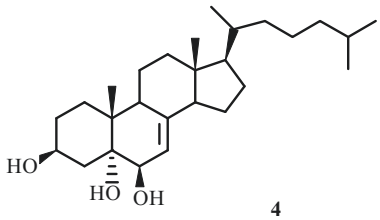

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