4、 外语能力证书

成 绩 证 明

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于 2019 年 6 月参加 全国大学英语四级考试。成绩 信息如下：

笔试

总分	听力 (35%)	阅读 (35%)	写作和翻译 (30%)
446	141	179	126

口试

等级
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学校名称：昭通学院

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教育部教育考试院

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5、 学术能力证明材料

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Article

Antifungal Polyacetylenic Deoxyglycosides Isolated from Endophytic Fungus *Xylaria* sp. VDL4 Associated with *Vaccinium dunalianum*

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Abstract: One novel C_{10} polyacetylene rhamnoside, 4,6,8-decatriyne-1-*O*-α-L-rhamnopyranoside, named xylariside A (**1**), together with two novel C_{10} polyacetylene quinovopyranosides, 4,6,8-decatriyne-1-*O*-α-D-quinovopyranoside, xylariside B (**2**), and 8*E*-decaene-4,6-diyne-1-*O*-α-D-quinovopyranoside, xylariside C (**3**), were obtained from the solid fermentation of *Xylaria* sp. VDL4, an endophytic fungus isolated from *Vaccinium dunalianum* wight (Ericaceae). Their chemical structures were elucidated through a combination of spectroscopic techniques. The antifungal activities of these compounds were evaluated in vitro against four phytopathogenic fungi (*Fusarium oxysporum*, *Botrytis cinerea*, *Phytophthora capsici*, and *Fusarium solani*). Compound **2** demonstrated significant antifungal activities, with minimum inhibitory concentration (MIC) values ranging from 3.91 to 7.81 μg/mL. Compound **2**'s effectiveness levels were similar to those of the reference drugs thiabendazole and carbendazim (each MIC = 0.98−15.62 μg/mL). Xylariside B (**2**) was further evaluated against *B. cinerea* in vivo. It exhibited remarkable efficacy in both the prevention and treatment of tomato and strawberry gray mold. Molecular docking studies confirmed the antifungal mechanism of compound **2** by revealing its binding interactions with key enzyme targets in *B. cinerea*, thereby supporting the observed in vitro and in vivo results. Additionally, compound **2** showed effective inhibition of α-glucosidase, with IC_{50} values of 5.27 ± 0.0125 μg/mL.

Keywords: *Xylaria* sp.; polyacetylenic rhamnosides; antifungal activity; α-glucosidase inhibitory activity; endophytic fungus; *Vaccinium dunalianum*; natural products

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1. Introduction

Polyacetylenes, possessing two or more alkynyl functionalities, are a category of secondary metabolites mainly generated by plants and fungi [1–4]. These privileged chemical structures have garnered tremendous interest for their extensive biological properties, leading to their application in pharmacology, medicinal chemistry, food chemistry, and agricultural protection [5,6]. Their potential in addressing health and disease-related challenges in both animals and humans further underscores their importance. The biosynthesis