Phytochemical and Biological Investigation of Aristolochia maurorum L.

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Aristolochia maurorum L. of Jordanian origin has been investigated phytochemically, quantitatively, and biologically. Three atypical alkaloids, namely aristolochic acid I (1), aristolochic acid II (2) and aristolochic acid IIIa (3), have been isolated and identified. Of these known 1-phenanthrenecarboxylic acids, 2 and 3 are reported for the first time from this species. The identified compounds 1-3 were first evaluated biologically as cytotoxic agents against the brine shrimp lethality test (BST), in which compound 1 was found to be the most potent $(LC_{50}, 4.9 \,\mu g/mL)$. The antiplatelet activity of the methanolic extracts, the acidic fractions of aerial and root parts, and the identified compounds 1-3 were evaluated using an automatic platelet aggregometer and coagulation tracer (APACT 2). Using external reference standards, and a reverse-phase isocratic method, the distribution of aristolochic acid I and aristolochic acid II in different plant parts of Aristolochia maurorum L. during flowering stage was analyzed by PDA-HPLC. A quantitative comparison between two previously reported extraction methods was also made. Roots were found to be the main storage of aristolochic acid I and aristolochic acid II during flowering stage with about 0.22 and 0.108% (w/w), respectively.

Key words: Aristolochic Acids, Aristolochia maurorum, Antiplatelet Activity