Are chemical differences on the essential oils of two species of genus *Ocotea* responsible for their *in vitro* antisnake venom activity?

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Ocotea acutifolia (Nees.) Mez. and *O. diospyrifolia* (Meisn.) Mez., Lauraceae, are species well known by their use as phytotherapeutics in the northeastern Argentina. There has been some confusion over their morphological similarities with other species of the Lauraceae family, as the case of some *Nectandra* sp. reported for their antisnake venom activities. As far as we know, only the volatile constituents of *O. acutifolia* has been previously investigated, being caryophyllene oxide (57%) and calarene epoxide (12%) the main components found (1). In addition, aporphine alkaloids (ocotein *N*-oxide, norocoxilonine) have been found in *O. acutifolia* leaves and barks, showing cytotoxic activity (2). As a part of our research on the essential oils from species traditionally used as antisnake venoms, we report here the essential oil composition of two *Ocotea* species gathered in Corrientes Province (Argentina) at the same vegetative stage: *O. acutifolia* (I) from San Isidro and *O. diospyrifolia* (II) from Paso de la Patria. Aerial parts of both *Ocotea* species were gathered and voucher specimens were deposited at herbarium CTES (IBONE). The components of the oil were analyzed by GC and GC-MS. Once the *Ocotea* specimens were botanically identified, and considering potential misuses of this plant material by local population when it is identified as *Nectandra* sp., the potential hemolytic and anti-hemorrhagic effect of the essential oils obtained from I and II were evaluated against *Bothrops diporus* snake venom. Among the compounds present in the essential oils, 97.6% were identified for *O. acutifolia* (I) and 98.2 % for *O. diospyrifolia* (II). The oils were characterized by high percentages of sesquiterpenes oxygenated, the amounts varied according to the species considered: 49.1 % for (I) and 62.5% for (II). However, the chemical profiles were different for each species, being atractylone (22.0%), β-selinene (14.6%), β-caryophyllene (5.6%) and spathulenol (4.6%) the main components for I. While, carotol (30.0%), germacrene D (12.1%), *epi*-globulol (9.7%), longifoliol (8.6%) and germacrene D-4-ol (7.1%) showed the higher percentages in II. When the antisnake venom activity of the oils was evaluated, the *O. acutifolia* oil showed high activity by SDS-PAGE against *Bothrops diporus* venom, inhibiting completely the proteolytic activity on casein (1:100) and 50% of the clotting activity (1:5). *O. diospyrifolia* oil showed activity inhibiting proteolysis of casein, but in a lesser extent than *O. acutifolia* oil, being restored only 15% of the clotting time even at higher ratio (1:10). In brief, significant differences were observed in the chemical composition for both *Ocotea* species. However, the antisnake venom activity was much lower than for *Nectandra* sp., suggesting the need to inform the public to avoid confusions arising in the implementation of these medicinal plants.

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