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EDITORIAL

Safeguarding the medicinal value of Sri Lankan flora

Out of the 30 patents covering the compounds and extracts of *Salacia reticulata* var. *diandra* (Kothala Himbutu) growing in Sri Lanka and India, several Japanese patents claim anti-diabetic properties of its extracts. The claims of these patents have been made despite the practice of using *S. reticulata* in the treatment of high blood-sugar, which is part of the traditional knowledge of Sri Lanka; and furthermore its efficacy had been scientifically demonstrated through work carried out by Karunanayake *et al*. (1984) prior to the approval of these patents.

Significantly, *Salacia diandra* was first described by Thwaites as a distinct species endemic to Sri Lanka; and it was later reduced to a variety of *S. reticulata* (*Salacia reticulata* var. *diandra*) by Lawson in 1875. However, in the Revised Handbook to the Flora of Ceylon (2003) it has been listed as *Salacia diandra* Thw. *S. diandra* differs from *S. reticulata* by having solitary flowers, narrower leaves with entire margin and finer reticulation of veins and flowers with two stamens. Unlike *S. reticulata*, *S. diandra* is distributed in the Wet Zone (wetter parts of Ratnapura, Galle and Matara Districts). According to the National Red List, *S. diandra* is an endangered plant. Evidently, this plant which is routinely referred to as originating from 'India and Sri Lanka', is a plant endemic to Sri Lanka.

It is therefore debasing that the above patents would restrict Sri Lanka from exporting any value added anti-diabetic formulations, synthetic or natural, based on *S. diandra*. Regrettably, the authorities will continue to "allow" Sri Lanka to export the raw plant material to feed the supply chains of value addition for money making businesses. However, in a landmark decision in 2006, the Government of Sri Lanka banned the export of Kothala Himbutu. It remains to be seen whether this would make these foreign patents unusable.

In a 1997 publication, a Japanese group reported the isolation of two anti-diabetic compounds salacinol and kotanalol from the aqueous extract '*S. reticulata* var. *diandra*' from 'Sri Lanka and India' (Yoshikawa *et al*., 1997). Prior to and concurrently, Sri Lankan investigators who worked on organic extracts of the plant reported novel triterpenoidal compounds but had unfortunately missed the two anti-diabetic compounds (Gunatilaka *et al*., 1993; Dhanabalasingham *et al*., 1996). Salacinol and kotanalol are tetrahydrofuran compounds, underscoring that nature's bioactive bounty of compounds holds a plethora of five-membered ring compounds and their construction and annulation are of great importance (Piers & Karunaratne, 1983).

In this backdrop of lost traditional knowledge and missed scientific opportunities, it is noteworthy that 2011 heralded the approval of a US patent (Thadhani *et al*., 2011) for the anti-diabetic activity of a triterpenoid named zeorin isolated from the lichen *Cladonia* sp. from Sri Lanka. The discovery of this potent α-glucosidase inhibitor while providing a modicum of consolation to the lost national pride, also focuses our attention on tropical lichens, one of the least studied cryptogams in the world. In Sri Lanka, new species have been discovered (Orange *et al*. 2001) and lichens have yielded novel biologically active compounds.

Sri Lanka possesses more endemic flora per unit area than any country in Asia. Therefore, nature conservation is of paramount importance. The economic value of conservation of the knowledge hidden within the endemic flora for the benefit of the country is equally important. Clearly, Sri Lanka requires more scientific research to investigate the endemic flora for medicinal and other important agents. However, the trials and travails faced by scientists of Sri Lanka contributing to this important area reveals the neglect of this natural heritage, in the land of serendipity, by both policymakers and granting agencies.

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