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Ethnopharmacological Note

***Heliconia rostrata* Ruiz & Pav. (Heliconiaceae) – A previously unreported plant for treatment of diabetes and diabetes-induced edema**

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Abstract

Heliconia rostrata Ruiz & Pav. (Heliconiaceae) is a comparatively rare plant found in the Rema Kalenga Wildlife Sanctuary in Sylhet Division in the northeast of Bangladesh and Bagerhat district in the southwest part of Bangladesh. In English, it is known as Lobster Claw Plant. In Bangladesh, the plant is known as heliconia. The flower of this plant is considered as the national flower of Bolivia. To our knowledge, only one previous ethnomedicinal use of this plant has been reported from Bangladesh. Folk medicinal practitioners in two villages by the Rupsha River in Bagerhat District of the country use leaves and seeds of the plant as a tonic and to treat headache, sprains and pain (Mollik et al., 2010). Diabetes mellitus, characterized by high blood glucose levels, is becoming a serious problem worldwide because it cannot be cured with existing medicines, and moreover, with time, leads to further serious complications like disorders of the heart, kidney and eyes. Kidney disorders due to diabetes (diabetic nephropathy) can lead to edema or swellings in various parts of the body (Hommel et al., 1990). Although oral medications and insulin injections are available to lower blood glucose, such medications are costly, or cumbersome (like daily injections of insulin) and as a result, not much of use among the common rural people of Bangladesh. As a result, there is a constant search going on for new anti-diabetic drugs. Since plants have always proved to be good sources for lead compounds and new medicines, many anti-diabetic research works have centered on plants (reviewed by Kayarohanam and Kavimani, 2015). A number of plants are also used traditionally in Bangladesh as anti-diabetic plants (Rahman et al., 2013). In this note, we report the use of *Heliconia rostrata* Ruiz & Pav. by a folk medicinal practitioner (FMP) practicing at Chunarughat, Habiganj District, Sylhet Division, Bangladesh to treat diabetes and diabetes-induced swellings on legs. The FMP (male, age about 70 years, initials MAG, he declined to give consent to publish his full name) claimed to specialize in the treatment of diabetes and diabetic-induced complications. Diabetes was diagnosed by him on the basis of several symptoms in combination like fatigue, frequent urge to eat, frequent thirsts and urination, excessive sweating, and occasional swellings in different parts of the body. Also on occasions, the FMP relied on diagnosis in a modern diagnostic clinic that the patient has diabetes. The FMP did not know and distinguish between the various types of diabetes like Types 1 and 2, and gestational diabetes. The



FMP's mode of treatment consisted of collecting leaves of *Heliconia rostrata* Ruiz & Pav. (Figure 1), and crushing the leaves between two pieces of stone (shil pata, Figure 2) to obtain juice. The juice was then filtered through a piece of clean cotton cloth. About 120 ml of the juice was advised by the FMP to be orally taken with 1g of kali jeera seeds (*Nigella sativa* L., family: Ranunculaceae) every evening for three consecutive months. *Heliconia rostrata* Ruiz & Pav. specimen (as shown by the FMP) was photographed and identified at the Bangladesh National Herbarium (Voucher Specimen Number 43730). The FMP mentioned that he collected leaves of *Heliconia rostrata* Ruiz & Pav. from Rema Kalenga Wildlife Sanctuary. Seeds of *Nigella sativa* L. are used commonly as a spice in Bangladesh and can be procured from any common kitchen market or spice shop throughout the country. It is to be noted that seeds of *Nigella sativa* L. have been reported to treat diabetes and ameliorate diabetes-induced complications; the active anti-diabetic ingredient has been identified as thymoquinone (Saleem et al., 2016). *Heliconia rostrata* Ruiz & Pav. has not been studied thus far for its anti-diabetic potential or active ingredients and so merits scientific research towards discovery of possible novel anti-diabetic compound(s).

Keywords: medicinal plants; *Heliconia rostrata*; diabetes

Declaration of conflict of interest

No conflict of interest associated with this work.

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Figure 1. *Heliconia rostrata* Ruiz & Pav.



Figure 2. Shil pata