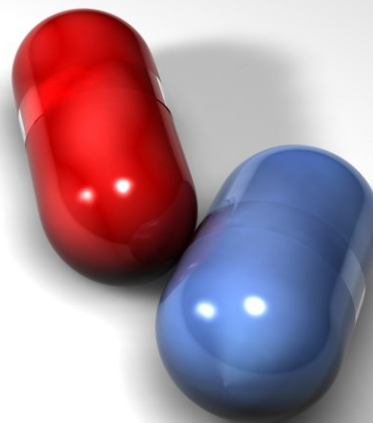


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## Letter to the Editor

### Anti-diabetic activity of giant grass *Bambusa tulda*

Sir,

Though the field of medical science has reached new avenues in recent years, the prevalence of diabetes and its associated complications have raised round the globe. The ethnobotanical lore of India is very rich and use of plant parts for the treatment of various ailments especially diabetes is in vogue since ancient times. Now-a-days scientific evidences also maintains these claims, since they are proven safe, effective and also helps in improving overall health (Usha et al., 2017; Wang et al., 2017)

Bamboo has been used over centuries as a potential source of medicine in China and other Asian countries (Goyal and Brahma, 2014). A number of bamboo species like *Sasa borealis* (Choi et al. 2008; Hyun and Hyeon-Sook, 2009), *Pseudosasa japonica* (Panee, 2008), *Bambusa vulgaris* (Senthilkumar et al., 2011), *B. balcooa* (Goyal et al., 2017) have been reported for antidiabetic

effects using animal models and *Dendrocalamus hamiltonii*, *D. sikkimensis*, *B. balcooa*, *B. pallida*, *B. vulgaris* using *in vitro* model (Middha and Usha, 2012).

*B. tulda* popularly known as Owa Gubwai (*Bodo*) or Jati Banh (*Assamese*) (Brahma et al., 2014) is considered to be one of the most useful bamboo species in North east India.

In this letter, an attempt was made to evaluate the anti-diabetic activity of the leaf of *B. tulda* for the first time. LC-MS analysis revealed the presence of various compounds such as *p*-hydroxybenzoic acid, salicylic acid and many more. Preclinical validation of anti-hyperglycemic activity of *B. tulda* was carried out using alloxan induced diabetic rats. Two different doses of hydromethanolic extract of *B. tulda* leaf (50 and 100 mg/kg/mL) were used.

The animals treated with *B. tulda* leaf have shown an increase in body weight as compared to diabetic animals. Maximum increase was noted in standard drug than the animals treated with the extract (Figure 1). Goyal et al. (2017) also indicated the same previously in a different species of bamboo. Weight loss was

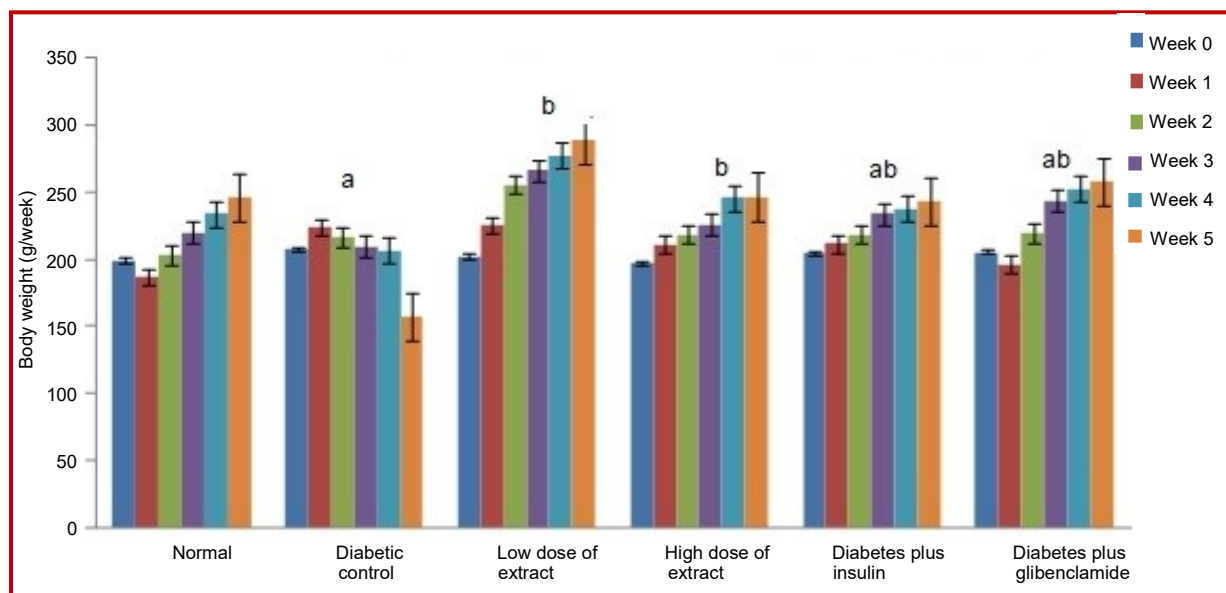


Figure 1: Effect of *B. tulda* leaf extract on body weight (g/week) in different experimental group. Low dose (50 mg/kg/mL) and high dose (100 mg/kg/mL) were used. Values are in mean  $\pm$  SE of nine rats per group (n=9). Statistical analysis was done by one-way ANOVA between groups and values were considered significant at  $p < 0.05$ . Those which are not sharing the same letters are significantly different



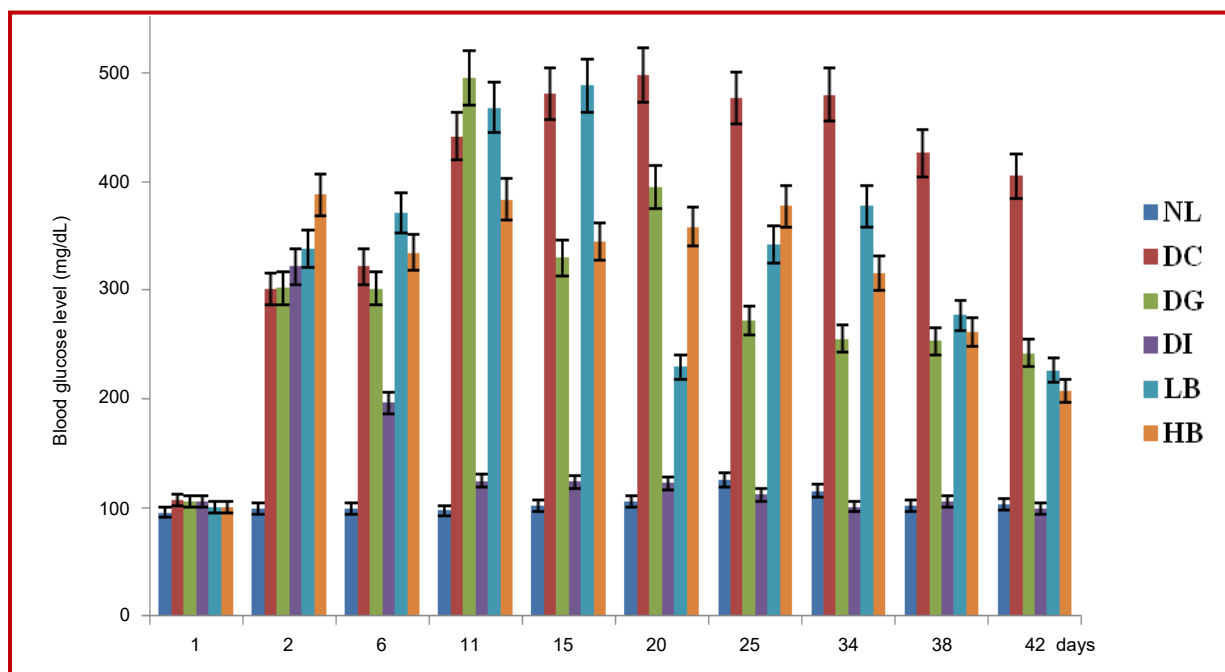


Figure 2: Effect of hydromethanolic extract of *B. tulda* leaf on blood glucose level in different experimental groups. NL, Normal; DC, Diabetic control; DG, Diabetes plus glibenclamide; DI, Diabetes plus insulin; LB, Low dose of *B. tulda* (50 mg/kg/mL); HB, High dose of *B. tulda* (100 mg/kg/mL). Values are mean  $\pm$  SE of nine rats per group (n=9). Statistical analysis was done by one-way ANOVA between groups and values were considered significant at  $p < 0.05$ . Those which are not sharing the same letters are significantly different

caused due to diabetic conditions in animals. Reversal of bodyweight might be because of the reduction in hyperglycemia after supplementing *B. tulda* leaves. Besides this a reduction pattern in blood glucose level was noticed up to 6<sup>th</sup> week in experimental animals receiving the high dose (100 mg/kg/mL) (Figure 2). The possible mechanism by which *B. tulda* brings down the hyperglycemia may be by increasing the pancreatic secretion of insulin from  $\beta$ -cells of Islets of Langerhans. Hence, may be the presence of phytoconstituents in the hydromethanolic extract proves that *B. tulda* leaf could be able to manage diabetic level, though not significantly, has probable anti-diabetic activity. However, detail studies to fully substantiate the antidiabetic activity of *B. tulda* leaf is currently in progress by our research group.

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