

# PRESS RELEASE

RGU-led study on medicinal plants used for diabetes management accepted in Scientific Reports

**DOIMUKH, Sept 5:** A study led by researchers at **Rajiv Gandhi University (RGU)** on medicinal plants traditionally used for diabetes management in **Biswanath district, Assam**, has been accepted for publication in *Scientific Reports*, published by Springer Nature.

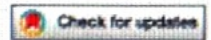
Titled “**Quantitative ethnobotany and evidence-based analysis of antidiabetic medicinal plants used in Biswanath district, Assam, India,**” the study documents traditional medicinal knowledge of local communities and examines the scientific evidence supporting the reported antidiabetic uses of the plants. The research contributes to the documentation and safeguarding of **indigenous ethnomedicinal knowledge of Northeast India** and strengthens the link between traditional knowledge and evidence-based scientific research.

The research team comprised **Dr. Ayam Victor Singh, Bichitra Gohain and Rishab Sharma of Rajiv Gandhi University**, along with **Dr. Helen Soibam of the College of Agriculture, Central Agricultural University (Imphal), Pasighat**.

The article will be available online following completion of the publication process, allowing interested readers to access the full study.

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# OPEN Quantitative ethnobotany and evidence-based analysis of antidiabetic medicinal plants used in Biswanath district, Assam, India

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Type 2 diabetes is a growing public health concern in India, while plant-based remedies remain important in Assam. This study documented plants used for diabetes-related complaints in Biswanath district, quantified diabetes-specific salience and consensus, and integrated ethnobotanical indices with pharmacological evidence. From December 2022 to March 2024, semi-structured interviews with 440 informants were complemented by voucher-based taxonomic authentication. Relative Frequency of Citation (RFC) and Fidelity Level (FL) were diabetes-specific, whereas Use Value (UV) measured ethnomedicinal versatility across all ailments. Published species-level antidiabetic evidence was graded as no eligible evidence, in vitro only, or in vivo and/or human. We documented 63 species in 57 genera and 39 families. Among 83 plant-part use records, fruit (22.9%) and leaf (21.7%) were most frequent. *Andrographis paniculata* (RFC = 0.223), *Kalanchoe pinnata* (0.200), and *Nyctanthes arbor-tristis* (0.180) were most frequently cited for diabetes; *Allium sativum* had the highest overall UV across all ailments (2.359), and *Syzygium cumini* the highest diabetes-specific FL (92.59%). Evidence-salience mapping placed 16 species (25.4%) in the Overlap zone; none met Gap-zone criteria under the species-level framework. *Hydrocotyle sibthorpioides* and *Alocasia odora* had only in vitro evidence. The framework supports prioritisation but does not establish the efficacy or safety of locally used plant parts or preparations.

**Keywords** Ethnobotany, Antidiabetic plants, Cultural salience, Evidence mapping, Northeast India

Ethnomedicinal plant knowledge remains a primary healthcare resource across rural Assam and the wider Indo-Burma region, supported by high floristic diversity and strong community practice. Type 2 diabetes mellitus (T2DM) is a rapidly escalating metabolic disorder and a major contributor to global morbidity and mortality, with the greatest burden borne by low- and middle-income countries<sup>1,2</sup>. The burden of type 2 diabetes in India has increased markedly over time and is projected to rise further in the coming decades, reflecting a sustained upward trend in prevalence and public health impact<sup>3–5</sup>. Although multiple oral hypoglycaemic agents and insulin formulations are available, long-term diabetes management remains constrained by cost, limited accessibility, adverse effects, and interindividual variability in therapeutic response<sup>6–8</sup>. These limitations reinforce reliance on medicinal plants in South and Southeast Asia, where plant-based therapies are deeply embedded in traditional medical systems<sup>9,10</sup>. Here, diabetes-related remedies are examined as a focal use-category within broader ethnomedicinal knowledge, rather than as a disease-specific inventory.

India is a global centre of traditional medical knowledge, with Ayurveda, Siddha, and Unani systems documenting extensive plant-based therapies for metabolic disorders, including conditions broadly corresponding to diabetes (Prameha/Madhumeha)<sup>11,12</sup>. Northeast India lies within the Indo-Burma biodiversity hotspot and combines exceptional floristic richness with high cultural and ethnic diversity, resulting in highly localised ethnomedicinal traditions<sup>13,14</sup>. In Assam's Brahmaputra valley, medicinal plants remain integral to household care for chronic metabolic conditions; however, this locally held knowledge is still under-documented and only partially integrated with contemporary pharmacological literature<sup>15,16</sup>.

Although a growing body of ethnobotanical literature from Northeast India and other regions has documented medicinal plants used in diabetes management<sup>17–22</sup>, most studies remain largely descriptive species

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