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Isolation of a compound from leaves of Ageratum conyzoides Linn, a medicinal plant of North East Himalayas (India), and studies on its anti-diabetic activity in rats

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Objectives: Diabetes mellitus is a metabolic disorder of the endocrine system. The disease occurs worldwide and its incidence is increasing rapidly in most parts of the world. Search for effective antidiabetic agent is going on and extends even to the field of medicinal plants. *Ageratum conyzoides* Linn (*A. conyzoides* L.), family – Asteracées, is a well-known medicinal plant that has been used in several countries as traditional medicine for treating various diseases including diabetes mellitus. In the present study attempts were made to isolate a compound from *A. conyzoides* L. leaves and to study its antidiabetic activity in rats.

Methods: A. conyzoides leaves were collected, shade-dried and ground into powder. Solvent extraction and acid hydrolysis were done followed by solvent treatment and different chromatographic experiments. A compound was crystallized. 6 male albino rats (control) received normal diet and deionized water *ad libitum*. Rest 24 rats received single intravenous injection of streptozotocin to induce Diabetes. Once diabetic, 6 rats received the isolated compound (10 mg/kg/d), other 6 animals took the isolated compound (20 mg/kg/d) and another 6 rats received glibenclamide at a dose of 10 mg/kg/d for 14 days. Blood glucose was measured.

Results: In control rats, blood glucose was 102.55 ± 4.01 mg/dl while in streptozotocin treated rats, it was 259.98 ± 5.02 mg/dl ($p<0.001$). The levels of blood glucose significantly improved in rats that took isolated compound in doses of 10 mg/kg and 20 mg/kg and were 128.26 ± 3.01 mg/dl and 104.11 ± 1.58 mg/dl respectively ($p<0.001$) in comparison to streptozotocin treated rats. The blood glucose level of the rats that took glibenclamide (10 mg/kg) was 118.34 ± 1.99 mg/dl.

Conclusions: The isolated compound from *A. conyzoides* L. leaves has anti-diabetic effect against streptozotocin-induced diabetes in rats and the effect is comparable to that of glibenclamide, a known antidiabetic drug.