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Studies on antiasthmatic activity of aqueous extract of *Clerodendron phlomidis*

G. Vadnere, R. Somani[2] and A. Kumar Singhai[3]

Smt. S. S. Patil College of Pharmacy, Chopda-425 127 (MS), [1]Sinhgad College of Pharmacy, Pune-411 041(MS) and [2]Dept. of Pharm. Sci., Dr H. S. Gour University, Sagar-470 003 (MP), India gautamvadnere31@rediffmail.com

Asthma is a chronic inflammatory disease of the airways characterized by the fibrosis of the airways, hyperplasia and hypertrophy of smooth muscle cells and mucus secretary cells due to infiltration of activated eosinophils and activation of mast cells and lymphocytes. People with asthma constantly suffer from varying degrees of inflammation and muscle constriction of the airways. Many mediators trigger mucus hypersecretion. As a result, muscles surrounding the airways constrict and narrow the air passages, a process called 'bronchoconstriction'. Inflammation and bronchoconstriction both cause symptoms such as wheezing, coughing, chest tightness, and shortness of breath. A great number of traditional medicinal plants have been used in folk medicine to treat a wide range of physical ailments including asthma and bronchitis. As *Clerodendron phlomidis* Linn.(Syn. *Clerodendrum multiflorum*, Family: Verbenaceae) leaf juice traditionally used for the treatment of various diseases and disorders, particularly for the respiratory tract ailments. The plant has been used in the indigenous system of medicine in India and is a well-known drug in Ayurvedic and Unani medicine. It is abundant in the region of North Maharashtra commonly known as *Arni*. Since no scientific studies have been carried out on the leaf the present study designed to evaluate the antiasthmatic activity of aqueous extract of *Clerodendron phlomidis* (AECP) on *in vitro* and *in vivo* animal models. *In vitro* studies carried out on histamine- induced contraction in isolated goat tracheal chain (Nag Chaudhari & Lahiri 1974;) and *in vivo* studies on milk- induced eosinophilia (Brekhman & Dardymov 1969), mast cell degranulation (Lakadawala et al 1980) and capillary permeability (Nayampalli et al 1986) in mice ($n = 5$). The results showed that aqueous extract of *Clerodendron phlomidis* inhibited the contractile effect of histamine (Table 1, $P < 0.05$). A dose dependent contraction of goat tracheal chain is observed. Treatment with AECP (100 mg kg^{-1}, i.p.) decreasing eosinophilia by 68% while mast cells were protected 74% from degranulation as compared with control group. Also, AECP decreased capillary permeability by 63% in mice was evident from its effect on optical density of the dye. Thus, AECP showed antihistaminic, mast cell stabilizing and decreased capillary permeability effect and hence possesses potential role in the treatment of asthma. More detailed studies are underway to further elucidate the mechanism of antiasthmatic effect of aqueous extract of *Clerodendron phlomidis*.

Table 1 Effect of the aqueous extract of leaves of *Clerodendron phlomidis* on isolated goat tracheal chain

Sr. No.	Extract/Drug	Dose	Effect on the tissue	Effect on histamine-induced contraction (%)
1	Histamine	1 μg/ml	Contraction	92.07 ± 3.80
2	AECP	2 mg/ml	Contraction	89.32 ± 3.73
3	AECP	4 mg/ml	Relaxation	59.14 ± 2.70*
4	AECP	10mg/ml	Relaxation	50.91 ± 1.81*

$n = 4$, values are expressed in mean ± s.e.m. *$P < 0.05$ compared with histamine-induced contraction (82 mm taken as 100%).

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Hypoglycaemic activity of ethanolic extract of the leaves of *Moringa oleifera*: possible insulin secretogogue mechanism

A. G. Jagtap and M. D. Patel

Bombay College of Pharmacy, Kalian, Santacruz (E), Mumbai-400098, India jagtaparti@yahoo.com

The purpose of this study was to investigate effects of an ethanolic extract of the fresh leaves of *Moringa oleifera* (EtMo) after a single dose and daily administration for 10 days in streptozotocin-induced diabetic rats (STZ diabetic rats). The serum glucose levels were measured after single dose administration of EtMo. The serum glucose, insulin, triglycerides, cholesterol levels and hepatic, skeletal muscle (soleus) and heart glycogen content were measured after ten days treatment of EtMo in STZ diabetic rats. On the 10^{th} day the serum insulin levels were measured at 0 hour and 3 hours after administration of EtMo. The activity of the single dose administration of EtMo at 500, 750, 1000 mg/kg dosages was investigated on the serum glucose levels of the normal and glucose loaded normal animals (oral glucose tolerance test, OGTT). The results demonstrated that the effect of EtMo on normoglycemia is significant at a dose of 750 mg/kg by the maximum percentage reduction in serum glucose level after 2 hour. The data of OGTT revealed that the percentage increase in serum glucose level was lowest at the dose of 750 mg/kg and percentage reduction in serum glucose levels was highest at the dose of 750 mg/kg compared with other dosages. The hypoglycaemic activity of EtMo was evaluated at 750 mg/kg in the STZ diabetic rats. In STZ diabetic rats the loss in body weight was arrested on 5^{th} day of administration of EtMo and standard glibenclamide (10 mg/kg) compared with diabetic control. There was significant reduction in serum glucose level in STZ diabetic rats, three hours after administration of EtMo and glibenclamide compared with diabetic control on day 1. The data revealed significant reduction in serum glucose levels after 5 and 10 days of treatment with EtMo and glibenclamide compared with diabetic control. The diabetic rats showed significant decrease in serum insulin level compared to control rats on day 1. There was significant increase in serum insulin level at 0 hour in EtMo and glibenclamide treated group on day 10 compared with day 1. Moreover there was increase in serum insulin level after 3 hours of EtMo and glibenclamide treatment on day 10. The mechanism was further supported by significant high levels of glycogen in the liver, skeletal muscle and heart in EtMo and glibenclamide compared with diabetic control. On day 10 the serum triglyceride and cholesterol levels were low in EtMo and glibenclamide treated group compared to diabetic control. From the results obtained it can be concluded that, EtMo has demonstrable hypoglycaemic activity in STZ diabetic rats. Increase in basal serum insulin concentration, with increase in glycogen content of liver, heart and skeletal muscle, indicates that the underlying mechanism of hypoglycaemic activity of EtMo may be dependent of insulin secretion.