

ABSTRACT

TITLE OF THE ABSTRACT : **EFFECT OF CLEISTANTHIN C ON
VASCULAR RESISTANCE**

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Cleistanthus collinus is a poisonous plant seen in Tamil Nadu. The leaves of *Cleistanthus collinus* is commonly used for suicide. Mortality rate is about 28% and the death occurs usually around three to seven days after ingestion of poison. The toxic principles extracted from *Cleistanthus collinus* are Cleistanthin A and Cleistanthin C of which Cleistanthin C is mainly present in boiled extract. The mechanism by which this toxin acts is unknown. Hypotension is one of the clinical features of the poisoning. Earlier it was thought to be of cardiac origin. But later hypotension was suggested to be due to peripheral vasodilatation as systemic vascular resistance was very low in these patients. Catecholamines are the main treatment of choice for shock that may occur due to hypotension in the poisoning. But catecholamines seldom improve the condition of these patients and death is often inevitable.

OBJECTIVES

1. To perfuse the hind limb preparation of rat with a steady flow rate through the descending aorta and record aortic pressure with a pressure transducer.
2. Derive resistance from the pressure wave form mathematically using algorithms developed in the department.
3. Use the above preparation to study the effect of Cleistanthin C on vascular resistance.

METHODS

Cleistanthin C was isolated from *Cleistanthus collinus* leaves by Thin Layer Chromatography (TLC). Cleistanthin C was confirmed using High Performance Liquid Chromatography (HPLC).

Wistar rat isolated hind limb preparation was used in our study. It was perfused with physiological salt solution and the blood pressure was recorded using a pressure transducer connected to CMC data acquisition system (CMC Daq). The rate of perfusion was fixed by using peristaltic pump at 4ml/min. For the study, rats were divided into three groups. The preparation was perfused with Cleistanthin C (test) or ethanol (control) for 15 to 20 minutes. After this either phenylephrine (group 1), or adrenaline (group 2) or noradrenaline (group 3) was added. The change in pressure was recorded using pressure transducer. After that resistance was calculated using software developed in our department using curve fitting method.

RESULTS

Cleistanthin C at low dose did not produce any change in the vascular resistance, while at high dose increased the vascular resistance.

In the presence of Cleistanthin C catecholamines like phenylephrine, adrenaline and noradrenaline increased the vascular resistance as in control groups. There was no significant difference in the experiment and control groups.

CONCLUSION

Cleistanthin C, one of the toxic principles of *Cleistanthus collinus*, increases vascular resistance at high dose. In the presence of Cleistanthin C, catecholamines increased the vascular resistance similar to control group showing that Cleistanthin C would not affect the action of catecholamines.

KEY WORDS

Cleistanthus collinus, Cleistanthin C, Hypotension, Vascular resistance, Rat hind limb model