Assessment Of Anti-Inflammatory Potential Of *Narium Oleander* Bark

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Abstract
Nerium Oleander L. is an evergreen shrub or little tree with white latex reaching up to 2-5 m in height within the dogbane family Apocynaceae. It is a crucial medicinal plant in Indian folk medicine. It is referred to as oleander from its superficial likeness to the unrelated plant Olive olea[5]. *Nerium oleander* L. is native to Mediterranean regions. Distributed within the Himalayas from Aisan country westwards to Kashmir as much as 1950m, extending to Baluchistan, Afghanistan and located throughout Indian gardens [4].
The present study was done to the anti-diabetic activity of hydroalcoholic extract of Narium oleander stem by using in-vitro models. There were one models used for anti- diabetic activity i.e. Alpha amylase assay. The hydroalcoholic extract of Narium oleander shows significant % inhibition as compared to standard drug Acarbose. The hydroalcoholic extract of Narium oleander was evaluated for anti- diabetic activity.

Keywords: Narium oleander bark, Anti- diabetic, Hydroalcoholic extract ,In-vtro models

INTRODUCTION

Nerium indicum (Family: Apocynaceae) is a expansive evergreen shrub with smooth juice. The clears out are for the most part in whorls of three, now and then two, linear-lanceolate, acuminate and coriaceous. This tree is prevalently known as Karavira in Sanskrit, Indian oleander in English and Kanagale in Kannada. Nerium indicum found within the Himalayas from Nepal westwards to Kashmir up to 1,950 m. and in the upper Gangetic plain and Madhya Pradesh.It develops wild in numerous other states of India. Nerium indicum have been used in Ayurvedic medication since the glycosides present in the plant is having paralyzing activity on the heart, like digitalin, and a fortifying activity on the spinal line, like strychnine. [1]
Diabetes mellitus is a dangerous, complicated chronic illness that is a major global cause of illness. Hyperglycemia and abnormalities in the metabolism of fat, protein, and carbohydrates are the hallmarks of this metabolic illness, which is caused by a whole or relative deficiency in the hormone insulin. n addition to hyperglycemia, a number of additional variables, such as dislipidemia or hyperlipidemia, contribute to the development of micro and macrovascular problems. With diabetes, the primary contributors to morbidity and where there could be a two-three fold rise in diabetes mellitus cases.[2]

PLANT PROFILE:

Fig No. 6: *Nerium Oleander* L. Plant

Botanical name : *Nerium oleander*
Family : Apocynaceae
Marathi name : Kanher
Hindi name : Kaner, kanail
English name : Indian oleander
Synonyms : Soland, lorierbol, rosebay, rose laurel, kaner, Karavira, Viraka, Ashvamarka, Hayamaara, auripushpa, Siddhapushpa (white flower variety), Raktapushpa, Raktaprasava, Ravipriya (Red flowered variety).

MATERIALS AND METHODS:
Plant Material:
Collection of Plant:
The Bark sample of the plant *Nerium Oleander Linn.* Was collected from Pravara Rural College of Pharmacy, Pravaranagar (Loni), Ahmednagar (Maharashtra).Date of Collection: 10th December 2021
Authentication of Plant:
The plant sample was terminologically identified and authenticated at the herbarium of Department of Botany and Research Centre, Padmashri Vikhe Patil College of Arts, Science and Commerce, Loni, Pravaranagar- 413713. Date of Authentication:15th December 2021
Ref. No./PVPC/Bot/2021-22/75-6
Preparation of Plant extract:
For assessment of in vitro study, the coarsely powdered stem were subjected to solvent extraction (Maceration). 150g of shade dried powder of *Nerium oleander* L. were taken in hydro-alcohol (methanol: water, 70:30) in 500 ml conical flask. Allow to stand for 7 days with frequently shaking. After that filter it and concentrate on water bath and dried at room temperature and weighed accurately and stored for further use.

PHARMACOLOGICAL STUDY-
1) Antidiabetic Activity
Assessment of Pharmacological activity study by using In-vitro models:
α- amylase inhibition assay:[3]
Preparation of Reagents:
The starch solution (0.5 % w/v) was obtained by boiling and stirring 0.25g of Potato starch in 50 ml of deionized water for 15 minutes.
The enzyme solution (0.5 Unit/ml) was prepared by mixing 0.001g of α- amylase in 100 ml of 20mM Sodium phosphate buffer(pH6.9) containing 6.7mM Sodium Chloride.
The plant extract were dissolved in DMSO to give concentrations from 10 to 100mg/ml (10, 20,40,60,80 and 100 mg/ml).
The colour reagent was a solution containing 96mM 3, 5- dinitrosalicylic acid (20ml), 5.31 M Sodium potassium tartrate in 2 M Sodium Hydroxide (8ml) and deionized water (12ml).

Procedure:
- 1ml of plant extract and 1 ml of enzyme solution were mixed in a tube and incubated at 25°C for 30 minutes.
- To this mixture 1 ml of starch solution was added and the tube incubated at 25°C for 3minutes.
- Then 1ml of 3, 5- dinitrosalicylic acid was added and the closed tube placed into a water bath for 85°C.
- After 15 minutes, the reaction mixture was removed from water bath and cooled thereafter, diluted with distilled water up to the 10 ml and absorbance were recorded at 540 nm in a Shimadzu Multispect- 1501 Spectrophotometer.
- Individual blank solution were prepared for correcting the background absorbance.
- Acarbose solution (at the concentration of 10, 20, 40, 60, 80 and 100mg/ml) was used as positive control.
- Control were conducted in a similar manner replacing plant extract with 1ml DMSO.
- In this case, the colour reagent solution was added prior to the addition of starch solution and then the tube placed into the water bath.
- The % inhibition of α- amylase was assessed by the following formula-

% inhibition= 100 × Control- Test /Control

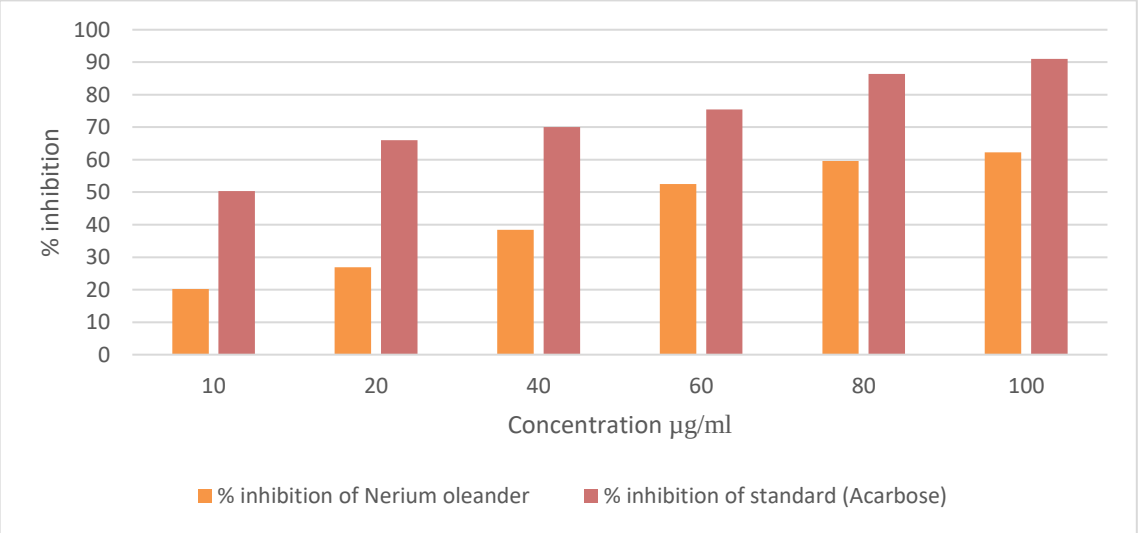
RESULTS
Assessment of Pharmacological activity study by using In-vitro models:
A) Antidiabetic activity:
Antidiabetic activity is done by using In-vitro models:

1) α- amylase inhibition assay: (540nm)

Effect of Acarbose as a standard drug and *Nerium Oleande*r L. against Egg Albumin Denaturation method

Sr. No.	Concentration (µg/ ml)	% Inhibition of *Nerium oleander* L.	% Inhibition of standard(Acarbose)
1)	10	20.24	50.31
2)	20	26.93	66
3)	40	38.40	70
4)	60	52.52	75.5
5)	80	59.65	86.35
6)	100	62.3	91

Table 1: Effect of Acarbose as a standard drug and *Nerium Oleande*r L. against Egg Albumin Denaturation method



Graph 1 : Effect of Acarbose as a standard drug and *Nerium Oleande*r L. against Egg Albumin Denaturation method

Conclusion

The Hydroalcoholic extract of Bark of Narium oleander shows the anti-diabetic activity as compair to standard drug Acarbose.

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