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Anti-Arthritic Activity of *Tecomaria Capensis* Leaves by Bovine Serum Albumin Denaturation Method

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ABSTRACT

Tecomaria Capensis belonging to the family Bignoniaceae is an evergreen climber. The aim of this research is to explore the anti-arthritic potential of this selected plant material. Ethanol and ethyl acetate successive crude extract of its leaves were subjected for in vitro anti-arthritic activity using inhibition of protein denaturation method. The successive ethanol extract have shown significant anti-arthritic activity by inhibition of protein denaturation with 62.67% and 82.5% of inhibition of protein denaturation respectively at the concentration of 100 and 250 µg/ml. Ethyl acetate extract have also the activity but less than that of ethanolic extract. All the concentrations prepared were paving dose dependent anti-arthritic activity.

Keywords: *Tecomaria Capensis* leaves, Ethanolic extract; Bovine serum denaturation method, Anti-arthritic activity.

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INTRODUCTION

After decades of serious obsession with the modern medicinal system, people have started looking at the ancient healing systems like Ayurveda a, Siddha and Unani. This is because of the adverse effects associated with synthetic drugs[1] Tecomaria capensis (Bignonaceae) is also known as Cape-honey suckle [2] is a climber common to the tropical zone. It is grown as an ornamental plant in gardens .Traditionally the leaves were used to treat pneumonia, enteritis, diarrhea and tonic. It was reported to contain analgesic, Antimicrobial, anti fungal and Antipyretic, antioxidant activity [3]. Hence the study paves the pharmacognostical relevance to identify the species for quality to maintain standards before it intended for production or consumption. The objective of investigations was to ease the identification of the species both in whole and powdered form. The presence of valuable phytoconstituents such as flavinoids, glycosides and steroidal compounds also demand further phytochemical studies of the species.[5]

MATERIALS AND METHOD

Collection and preparation of extracts

The plant material was collected from the plant *Tecomaria Capensis*,. which are collected during the month of December at Vadlamudi, Guntur (Dist.) of Andhra Pradesh. Then it was authentified by Dr. P. Satyanarayana Raju, professor, Department of Botany and Microbiology, Acharya Nagarjuna University, Nagarjuna nagar, Guntur. The flowers were extracted with soxhlet apparatus using hydro alcoholic solvent (yield 3.7%). The samples were prepared and used for anti-arthritic activity.

Chemicals and instruments

All chemicals used in the study were pure. Reference standard Diclofenac sodium obtained from Symed Pharm. Pvt. Ltd, Hyderabad. Bovine serum albumin fraction was used for the estimation of anti-arthritic activity.

Preliminary phytochemical screening

Preliminary phytochemical screening was performed by using standard protocol. [5-7]

Anti-arthritic activity by inhibition of protein denaturation method

The reaction mixture consists of 1 ml of test extracts and 1 ml of 1 % w/v aqueous solution of bovine albumin fraction. Then pH of the reaction mixture was adjusted by adding drop by drop small amount of conc. HCl. The sample extracts were incubated at 37 ˚C for 20 min and then the sample mixtures were heated to 51˚C for 20 min. Cool the samples then the calorimetric assay of albumin denaturation was performed. The absorbance was measured at 660 nm and all tests were performed in triplicate. Diclofenac sodium was taken as a standard drug. [8,9]

$$\% \text{ inhibition of denaturation} = 100 - \frac{\text{O. D of test control} - \text{O. D of product control}}{\text{O. D of test control}} * 100$$

RESULTS AND DISCUSSION

All the four extracts of *Tecomaria Capensis* have shown potent or moderate anti-arthritic activity in the method tested. Successively the crude ethanol extracts have shown potent anti-arthritic activity for 100 and 250 µg/ml, respectively. Table 1. Showed inhibition of protein denaturation. The crude ethanol extract showed % inhibition of denaturation. The preliminary phytochemical investigation revealed the presence of phenolic compounds in the polar extracts of the plant. Plant phenolics are known to exhibit potent anti-arthritic activity. Hence, the observed anti-arthritic activity of the extracts of *Tecomaria Capensis* may be due to the presence of these constituents. The present study also confirms the anti-arthritic property of the plant. However, further studies are required to confirm the same. The plant merits further investigation to isolate its active constituents and to establish the activity in animal models. The experiment was done in triplicate and the average was taken. % inhibition of denaturation was calculated from the control where no extract or standard was present.

Table 1: Evaluation of Anti-arthritic activity of ethanolic extract of *Tecomaria Capensis* by Bovine serum denaturation method

S. No.	Name of the drug	Concentration (µg/ml)	Absorbance (660 nm)	% Inhibition of denaturation
1.	Control	-	0.014	1%
2.	Ethanolic extract	100	0.021	62.67%
		250	0.016	82.5%
3.	Ethyl acetate extract	100	0.034	56.2%
		250	0.029	58.7%
4.	Diclofenac sodium	100	0.272	93.20%
		250	0.412	95.41%

CONCLUSION

In conclusion, this study provides evidences of ethanolic extract for the anti-arthritic activity of *Tecomaria Capensis*, which could partly contribute to its ethno-medical use. However, further investigation is required to isolate the active constituents responsible for this activity and to elucidate the exact mechanism of action.

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