

**ANTIMICROBIAL ACTIVITY OF *HOLARRHENA*
ANTIDYSENTERICA WALL.****Meenakshi Vaidya***

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Author****Meenakshi Vaidya**S.V.K.M's Mithibai
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Botany, Vile-Parle West,
Mumbai 400056.**ABSTRACT**

It is observed that the drugs in commerce are frequently adulterated and do not comply with the standards prescribed for authentic drug. *Holarrhena antidysenterica* Wall. has often been confused and adulterated with another member of the same family that is *Wrightia tinctoria* R. Br. By different techniques of standardization, crude drugs can be identified. Microbial evaluation of drug helps in confirmation of its identity and determination of its quality and purity and detection of nature of adulteration. The evaluation of crude drug is necessary because of biochemical variation, deterioration due to treatment and storage, and substitution and adulteration, as a result of carelessness, ignorance or fraud.

KEYWORDS: *Holarrhena antidysenterica*, *Wrightia tinctoria*, Microbial evaluation, adulteration, standardization.

INTRODUCTION

Holarrhena antidysenterica Wall. belongs to Family: Apocynaceae as suggested by Hooker, 1883. It contains alkaloids. Around 30 alkaloids have been isolated from the plant, mostly from the bark. These include conessine, kurchine, kurchicine, holarrhimine, conarrhimine, conaine, conessimine, iso-conessimine, conimine, holacetin and conkurchin. It is used as an astringent, anthelmintic, antidontalgic, stomachic, febrifuge, antidropsical, diuretic, in piles, colic, dyspepsia, chest affections and as a remedy in diseases of the skin and spleen which have been mentioned by Kirtikar & Basu 2006. It is a well-known drug for amoebic dysentery and other gastric disorders. It is also indicated in diarrhoea, indigestion, flatulence and colic as suggested by Agarwal 1997. The crude drugs can be identified on the basis of their morphological, histological, chemical, physical and biological studies. Adulteration is a

practice of substituting original crude drug partially or wholly with other similar looking substances but the later is either free from or inferior in chemical and therapeutic properties. Adulteration in simple terms is debasement of an article. The motives for intentional adulteration are normally commercial one and are originated mainly with the intention of enhancement of profits. Adulteration involves different conditions such as deterioration, admixture, sophistication, substitution, inferiority and spoilage.

The crude drugs can be identified on the basis of their morphological, histological, chemical, physical and biological studies. Anatomical studies have been done by Vaidya, 2015 and phytochemical screening has also been studied by Vaidya, 2015.

MATERIAL AND METHODS

Material	Place	Area
Bark of <i>Holerrhena antidysentrica</i> Wall.	Sanjay Gandhi National Park	Borivali (East)
Bark of <i>Wrightia tinctoria</i> R.Br.	Sanjay Gandhi National Park	Borivali (East)
Market sample -1	D. G. Ayurvedic Sangrah	Andheri (West)
Market sample - 2	Shivam Ayurvedic store	Vile Parle (East)
Market sample - 3	Shri. Jiya maa Ayurvedic and General Stores	Borivali (West)

PLANT PARTS USED: Bark

SHELF LIFE: 24 months unopened

STORAGE: Keep in a cool, dry place protected from moisture and heat

Microbiological assay was done by Agar-cup plate method.

The different extracts were put in the well and labeled and then kept at room temperature for 1 hour to allow the extract to diffuse in the medium. After 1 hour the plates were incubated at 37° for 24hrs.

The plates were observed on the next day and the zone of inhibition and diameter of cup were measured.

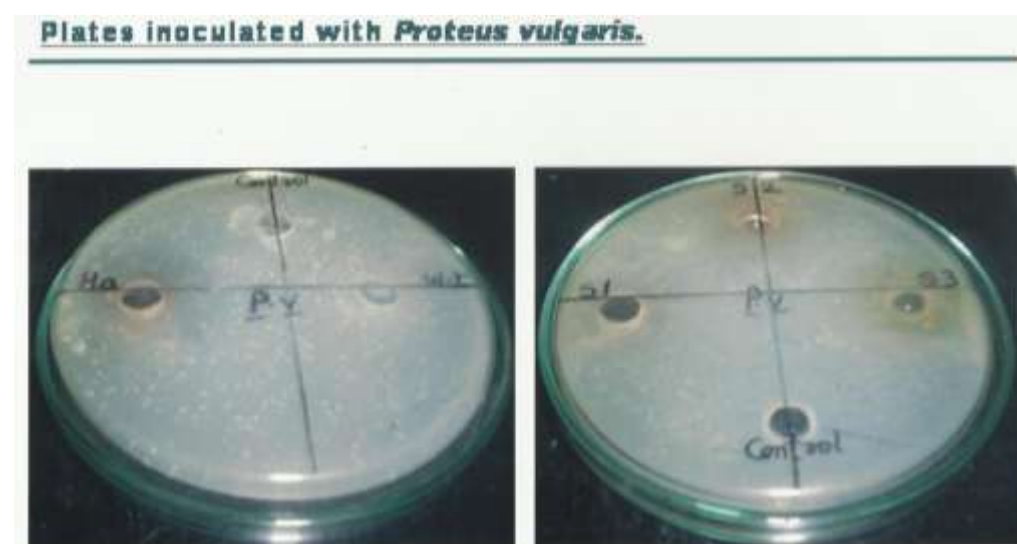
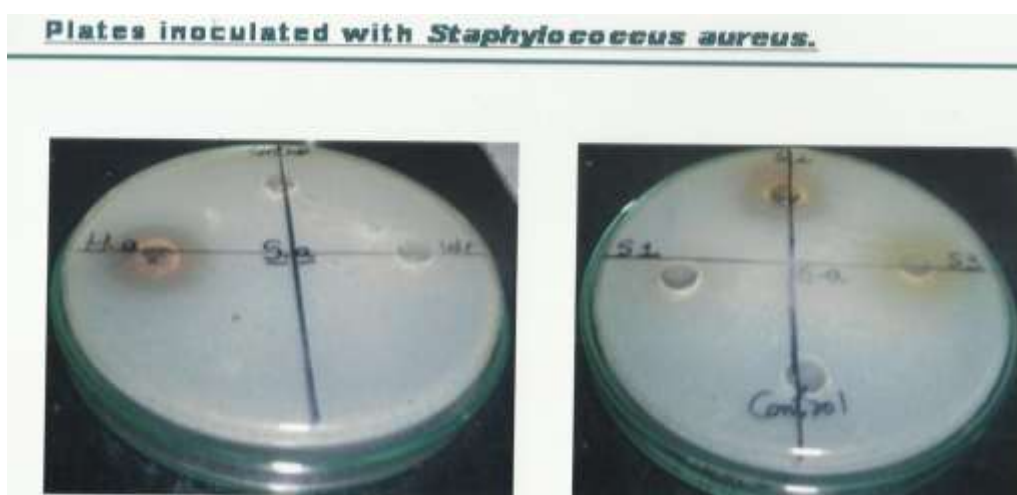
Pure cultures of micro-organisms and Methods for Microbiological assay were procured from Department of Microbiology, Mithibai College. The photographs put in the present project were taken from Camera- Nikon Coolpix L5 & Kodak Easy Share CX6200 in Mithibai College.

Microbiological assay: The assay of extracts is based on measurement of the diameter of microbial growth inhibition surrounding the cylinders containing various extracts of samples which are placed in the well of a solid nutrient medium, previously inoculated with culture of *Staphylococcus aureus* and *Proteus vulgaris* inhibition produced by the samples is compared with that produced by known drug.

OBSERVATIONS

BACTERIA	Zone of inhibition in mm Aqueous extract				
	H.a	W.t	S1	S2	S3
<i>Staphylococcus aureus</i>	14 mm	-	-	14 mm	-
<i>Proteus vulgaris</i>	4 mm	-	-	-	-

Note: Diameter of the cup is 8 mm.



CONCLUSION

S. aureus is inhibited by aqueous extract of *H. antidysenterica*. The inhibition is also seen with the extract of sample 2. The diameter of zone of inhibition of *H. antidysenterica* is same as of Sample 2. No inhibition is seen around the cup containing extracts of *W. tinctoria*, Sample 1 and Sample 3. No inhibition is seen in plates containing *P. vulgaris* of the marketed samples 1, 2, 3 and *W. tinctoria*. It also shows that the drug has lost its antibacterial property, hence it can be concluded that it is exhausted.

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