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Original Research Article

Antibacterial and antifungal activity of some new flavone glycoside

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Abstract

We report herein the synthesis and biological activity of a new kind of flavone glycoside.6,7,3,4 tetramethoxy flavone 5-0-β-D-glucopyranosyl-1-4 O-α-L Rhamnopyranoside is isolated from the methanolic extract of flowers of Strychnos Potatorum linn. The chemical structure of compound was deduced according to FTIR, ^{1}H NMR, ^{13}CNMR and FABmass spectral along microanalytical data. The compound showed antibacterial and antifungal activity.
Key Words: Strychnos potatorum, flavonoidal constituents, antibacterial and antifungal activities.

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INTRODUCTION

Strychnos potatorum Linn is known as nirmali in Hindi. It widely occurs in Deccean plateau including peninsular region. The seeds of strychnos are useful in the treatment of copious watering of eyes dysentery and leucoderma and the flowers are useful for folklore medicine.

Experimental: The methanolic soluble fraction of the concentrated rectified spirit extract of flowers of strychnos potatorum Linn worked up by column chromatography to gets flavones glycoside 6,7,3,4 tetramethoxy flavones 5-O-β-D-gucopyranosyl – (1->4)-O-α-L- Rhamnopyranoside(AS1). The compound was taken in aqueous medium (30 mg/ml) separately for assaying the antibacterial activity, cups or well methods as describe by Vincent and Vincent were taken resource to.

MATERIAL AND METHODS

Antibacterial Activity: Culture Media The nutrient agar medium used for antibacterial studies considered of the following composition as below:

1. Agar : 8gm
2. Beef extract : 2.5gm
3. Pepton : 2gm
4. Sodium chloride : 2gm
5. Distilled water : 250ml

Sterilization: The sub cultures, of organism were prepared, by sterilizing the medium and slants by autoclaving them at 15 lbs. pressure for over half an hour. The perti dishes used for the antibacterial studies were sterilized by keeping them overnight in an electrical heated air oven at 110°C.

Preparation of Agar Plants: Spore suspension (4% v/v) of each organism was prepared and mixed with sterilized nutrients agar medium (25 ml), each of which were allowed to gel in already sterilized [3,4] petri dishes of (90mm) diameter. Cups/wells were made in agar plates and after an hour, (0.02 ml) aqueous extract of each AS-1 were dispenses into the wells or Cups. Controls were run in the same way using 500 ppm solution of Acromycin. Thereafter the plates were incubated at 35±2°C, for 15 hours and their zones of inhibition measured which are recorded in the table -1 below;

RESULT AND DISCUSSION

A perusal of the observation table I and table II associated with antibacterial and antifungal activities of the different flavonoidal compounds AS-1 isolated from the flower of

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strychnos potatorum, concludes that AS-1 have encouraging antibacterial and antifungal activates against all the tested organism. Moderate activities were observed with AS-1 which occurs in the methanol extract encouraging activitity. a

Table 1: Ntibacterial activities of the flavonoidal constituents as-1 isolated from flowers of strychnos potatorum

Diameter of growth of inhibition zone in (mm) including the diameter of wekk (10 mm)			
	Organism	Different flavonoidal Compounds	
Sr. No.		AS-1	Control 500 ppm
1.	Bacillus anthraces	24	27
2.	Bacillus mycoides	23	25
3.	Bacillus subtilis	17	20
4.	Escherichia coli	-	26
5.	Proteus valgaris	18	23
6.	Pseudomonas aeruginosa	19	25
7.	Staphylococcus albus	12	24
8.	Salmonella paratyphi	-	22
9.	Vibrio cholera	23	25
10.	Xanthomonas malvacerum	20	19

Antifungal Activity: Each of the compound AS-1 were taken in aqueous medium for the study of antifungal activity. The antifungal activity[5] was estimated in terms of the inhibitory zones, which appeared around the filter paper discs.

Culture Media: The Sabrouad's dextrose agar (SDA) medium was used during the experiments for maintaining the culture and also for assaying. The seed agar, consisted of Peptone (6.0 gm), Dextrose,(25 gm), Agar (12gms) and distilled water (300 ml).

Sterilization: The slants and the media for the preparation of sub-cultures of various organisms were; sterilized by autoclaving them at 10 lbs. pressure for 40 minutes. The petri dishes used were first sterilized by keeping them for about 40 hours in an electrically heated air oven at 100°C.

Preparation of Agar Plates: This was done in the same way as was done for antibacterial activity.

Standard: The well known antifungal antibiotic Griseofulvin (1000 ppm) was used as standard substance for study of the antifungal activity in the present investigation.

Determination Of Antifungal Activity: After incubation the zones were measured and the experiments were repeatd in triplicate. Griseofulvin (1000 ppm). As standard antifungal substance was used for comparing the antifungal activity.The observation are recorded in table no-2 below;

Table 2: Antibacterial activities of the flavonoidal constituents as-1 isolated from flowers of strychnos potatorum

Diameter of growth of inhibition zone in (mm) including the diameter of wekk (10 mm)			
	Organism	Different flavonoidal Compounds	
Sr. No.		AS-1	Control 500 ppm
1.	Aspergillus flavus	13	21
2.	Fusrium solani	-	20
3.	Chrysosporium tropicum	12	20
4.	Keratinomyces ajelloi	15	21
5.	Microsporum gypseum	10	20
6.	Penicillium liliacinum	9	47
7.	Rhizopus nodosus	-	22
8.	Verticillium lecanni	11	18

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