

NOTE

Antimicrobial Activity of the Seeds of *Cichorium intybus* Linn.

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The antimicrobial activity of petroleum ether and ethanolic extracts of the seeds of *Cichorium intybus* Linn. has been studied against various microorganisms by disc diffusion method. Both the extracts at a concentration of 30 and 60 µg/disc showed significant activity against the fungal organisms investigated.

Key Words: Antimicrobial activity, *Cichorium intybus*.

Cichorium intybus Linn. (fam. Compositae) is locally known as 'Kasni'. Various medicinal properties have been attributed to this plant in the traditional system of Indian medicine. The seeds are reported to be carminative, cordial, a brain tonic and useful in headache, ophthalmia, throat inflammation, lumbago, enlargement of the spleen and asthma. A decoction is used in obstructed menstruation and for checking bilious vomiting¹⁻⁴.

The dried seeds of *Cichorium intybus* were procured locally from the Modinagar market and identified by Dr. H.B. Naithani, Botanist and Scientist, Forest Tree Seed Laboratory, Silviculture Division, Forest Research Institute, Dehradun.

The seed powder (500 g) was extracted with petroleum ether (60–80°C) and ethanol (95%) successively in a Soxhlet extractor and the extracts were concentrated to dryness *in vacuo*. Antimicrobial activity of the extracts was determined using paper-disc diffusion method⁵ by measuring the zone of inhibition. The extracts at a concentration of 30 µg and 60 µg/disc were screened for their antimicrobial activity using *Bacillus subtilis*, *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Aspergillus niger*, *Aspergillus flavus*, *Candida albicans* and *Fusarium oxysporum* as test organisms.

Nutrient agar (Hi Media) and sabouraud dextrose agar (Hi Media) were used as media for bacteria and fungi respectively. Control experiment was carried out under similar condition by using ceftazidime and miconazole as a standard for antibacterial and antifungal activity, respectively. The petri dishes were incubated at 37°C for 48 h. The zones of inhibition are recorded in Table-1.

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TABLE-1
ANTIMICROBIAL ACTIVITY OF PETROLEUM ETHER AND ETHANOLIC
EXTRACTS OF *CICHORIUM INTYBUS* SEEDS

Microorganisms	Pet. ether ($\mu\text{g}/\text{disc}$)		Ethanol ($\mu\text{g}/\text{disc}$)		Ceftazidime ($\mu\text{g}/\text{disc}$)	Miconazole ($\mu\text{g}/\text{disc}$)
	30	60	30	60	30	10
Bacteria:						
<i>Bacillus subtilis</i>	-	+	-	-	+++	NT
<i>Staphylococcus aureus</i>	-	-	+	+	+++	NT
<i>Escherichia coli</i>	-	+	-	-	++	NT
<i>Pseudomonas aeruginosa</i>	-	-	-	+	+++	NT
Fungi:						
<i>Aspergillus niger</i>	+	++	++	+++	NT	+++
<i>Aspergillus flavus</i>	++	+++	++	++	NT	+++
<i>Candida albicans</i>	+	++	++	+++	NT	+++
<i>Fusarium oxysporum</i>	++	+++	+	++	NT	+++

Disc diameter = 4 mm; Zone of inhibition (mm): < 4; += 5-10; ++ = 11-15; +++ = >16; NT = not tested.

The study reveals that petroleum ether and ethanolic extracts exhibited moderate to significant activity against all the tested fungal organisms at the concentration of 30 and 60 μg but none of the extracts was active against the tested bacterial organisms.

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