



ANTIFUNGAL EFFECT OF CALLUS AND WILD PLANT OF *TOURNEFORTIA DENSIFLORA* MARTENS & GALEOTTI

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Tournefortia densiflora, *Trichophyton mentagrophytes*, *Trichophyton rubrum*

Introduction. *T. densiflora* popularly known in the State of Morelos as "tlachichinol", in traditional medicine is used topically in the treatment of skin infections (1). The aerial parts of the plant have important antibacterial and antiprotozoal activity (2,3). Given the important biological activity of the plant were initiated callus cultures, which evaluated the effect different culture medium (MS, B5 and WPM), determining the medium WPM + PIC and / or 2,4-D was optimal to induce callus formation (4).

In this research, the effect of two treatments in the kinetics of cell growth and antifungal activity was determined in the organic extracts of callus material such as wild plant *T. densiflora*.

Methods. We used previously callus cultures obtained by Dra. Osuna. To establish the kinetics of cell growth in callus cultures were taken in 500 mg fresh weight (FW) and seeded in the medium WPM added: T1 (PIC, KN and GA₃) and T2 (2,4-D, KN and GA₃) for 4 weeks. Cultures were maintained under controlled conditions of 25 ± 2°C in the dark. Triplicate samples were taken every other day until the end of the kinetics. The response variables were fresh and dry weight, the growth index and average doubling time. Antifungal activity was evaluated; hexane, chloroform and methanol extracts of callus material and whole plants in concentrations of from 1 to 8 mg/ml against the dermatophytes *Trichophyton mentagrophytes* (*Tm*) and *Trichophyton rubrum* (*Tr*) using the Double Dilution Agar method (5).

Results. With respect to cell growth of the callus cultures, there was no significant difference between the two treatments. In evaluating the antifungal activity of leaf extract hexane proved to be active against both dermatophytes (MIC of 1 mg/m *Tr* and *Tm*) in terms callus material derived leaf, the

hexane extract of treatment 1 had a MIC of 1 mg/ml for *T. mentagrophytes* and 0.5 mg/ml for *T. rubrum*. (Table 1)

Table1. Antifungal effect of the wild plant (leaf, stem and root) and callus material of *T. densiflora* against dermatophytes *T. mentagrophytes* and *T. rubrum*.

Organic extract	Material	MIC (mg/ml) <i>Tm</i>	MIC (mg/ml) <i>Tr</i>
Hex	Leaf	1	1
	Stem	4	4
	Root	4	4
	Callus T1	1	0.5
	Callus T2	4	4
CHCl ₃	Leaf	>4	>4
	Stem	>4	>4
	Root	1	2
	Callus T1	2	2
	Callus T2	4	2
MeOH	Leaf	4	4
	Stem	4	>4
	Root	2	2
	Callus T1	>4	>4
	Callus T2	>4	>4

Conclusions. *T. densiflora* has significant *in vitro* activity against dermatophytes *T. mentagrophytes* and *T. rubrum*, however callus material derived leaf *T. densiflora* was more active than the wild plant with respect to *T. rubrum*. It corroborates the traditional-medical possessing the wild plant.

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