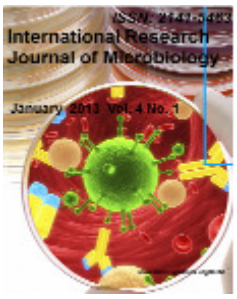

International Research Journal of Microbiology (IRJM) (ISSN: 2141-5463) Vol. 4(1) pp. 29-37, January 2013
Available online http://www.interesjournals.org/IRJM

Full Length Research Paper

Antidermatophytic activities, Phytochemical screening and Chromatographic studies of *Pergularia tomentosa* L. and *Mitracarpus scaber* Zucc. (Leaves) Used in the Treatment of Dermatophytoses

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Abstract

Antidermatophytic activities, phytochemical screenings and chromatographic studies of *Pergularia tomentosa* and *Mitracarpus Scaber* (leaves) were determined. The extracts of the plants were prepared at five different concentrations (10, 20, 40, 80 and 160 mg/ml). The results of antidermatophytic activities of crude extracts of the two plants exhibited promising antidermatophytic activites against *Trichophyton rubrum* and *Trichophyton mentagrophyte* at concentration of 10 mg/ml. Growth of *Microsporum gypseum* was controlled at 40 mg/ml by both plants. Similarly, the results for phytochemical screening showed the presence of Tannins, Flavonoids, Alkaloids, Saponins, Glycosides, Saponinglycosides, Cardiacglycosides, Anthraquinones and Steroids. Saponins and Flavonoids of both plants were present in large quantities. Column chromatographic fractionation of *P. tomentosa* and *M. scaber* was conducted using extracts of various organic solvents. Assessment of each fraction for antidermatophytic activity revealed chloroform fraction 4 (CHL4) of *P. tomentosa* and chloroform fraction 1 (CHL1) of *M. scaber* as the most active fractions against *Trichophyton rubrum, Trichophyton mentagrophyte* and *Microsporum gypseum* at 10 mg/ml. MIC and MFC determinations of the active column fractions produced inhibitory action on *T. rubrum*, *T. mentagrophyte* and *M. gypseum* at 10 mg/ml each. From the results obtained it can be concluded that the presence of the above phytochemical compounds in *P. tomentosa* and *M. scaber* may be responsible for the antidermatophytic activities exhibited by the plants against most of the dermatophytes tested.

Keywords: Antidermatophytic activities, phytochemical analysis, chromatographic studies, *Pergularia tomentosa, Mitracarpus scaber* and dermatophytoses.

INTRODUCTION

Dermatophytes are fungi capable of parasitizing only keratinized epidermal structures like the superficial skin, hair and nails. They are the most common agents of fungal infections worldwide Robert et al., 1992 and Yuanwu et al., 2009. Dermatophytes cause infection of the skin, hair and nails due to their ability to obtained nutrient from keratinized material Dermatophytic infections have been considered to be a major public health problem in many part of the world. The infections are common in the developing countries, and are of particular concern in the tropics and subtropics regions where the environment is humid and warm Guest and Sam, 1998. The reported peak incidences of dermatophytic infections occur in school aged African and American children, where it accounts for up to 92.5% Hebert, 1988. Dermatophytes are susceptible to common disinfectants, particularly those containing aerosol, iodine or chlorine. In some cases combine topical and systemic treatment are often used. However, in our society (Sokoto metropolis) today lack of education particularly in knowledge related to clinical mycology, such treatments are not administered at the beginning of such infections until when they have progressed to chronic level. More to this are the cost device and availability of such antifungal agents which are sometimes beyond the reach of the common man, as a result they revert as usual to the traditional means of treatment.

In Nigeria, many plants are used against infectious diseases, which today are frequent due to very poor hygienic conditions, cost and microbial resistance to the time- honoured antibiotics Jennifer and Paul, 2000. The continuing increase in the incidence of fungal infections together with the gradual rise in resistance of bacterial and fungal pathogens for antibiotics and antifungal highlights the need to find alternative sources from medicinal plants Berkowtz, 1995; Ngono Ngane et al., 2000.

Medicinal plants are of great importance to the health of individuals and communities. Herbal medicines derived from plant extracts are being increasingly utilized to treat a wide variety of clinical diseases Hemandez et al., 2000. The medicinal value of plants lies in some chemical substances that produce a definite physiological action on the human body. The most important of these bioactive constituents of plants are alkaloids, tannins, flavonoids, saponins, glycosides and other phenolic compounds Rojas et al., 1992. Thus, this work was designed to evaluate the potency of *Pergularia tomentosa* and *Mitracarpus scaber* against some species of dermatophytes with the view to generating data on medicinal plants that can cure dermatophytoses.

MATERIALS AND METHODS

Sample collection

Fresh leaves of *Mitracarpus scaber* Zucc*,* and *Pergularia tomentosa* L*,* were collected around Usmanu Danfodiyo University (permanent site) Sokoto. The plants were identified and confirmed at Usmanu Danfodiyo University, Sokoto Herbarium (Botany unit, Department of Biological Science). Voucher specimens were deposited in the Herbarium. The plant materials (fresh leaves) were air dried, pulverized into a fine powder for extraction and fractionation.

Extraction and fractionation procedure

Extraction and fractionation of the plants extract was carried out by activity guided fractionation according to Moris and Aziz, 1976. The procedure was carried out using ethanol-water (1:1 v/v) and different organic solvents, (n hexane, Petroleum ether and Chloroform).

Forty grams of the powdered plant materials were extracted using percolation process in 250ml distilled water and 250ml ethanol at 35^{o}C overnight. The extract was filtered and the filtrate was partitioned with 250ml n hexane. The extract was separated by filtration. The hexane filtrate was evaporated to dryness at 40^{o}C to obtain residue. The remaining water ethanol extract was further partitioned with petroleum ether and chloroform using the same procedure above. The last remaining water ethanol extract was also evaporated to dryness to yield residue. The dried extracts were reconstituted in water at different concentrations of 10, 20, 40, 80 and 160 mg/ml respectively. Another extraction was carried out using 40g of procured plant material with 500 ml distilled water at 35^{o}c overnight. The extract was filtered and evaporated to dryness, and residues were obtained in gram.

Determination of crude antidermatophytic activities of Pergularia tomentosa and Mitracarpus scaber (leaves)

The antidermatophytic activity of the crude extracts of *P. tomentosa* and *M. scaber* was carried out using agar incorporation method (dilution on solid medium) according to procedures Zacchino et al ., 1999; Hassan et al., 2007.

The fungal isolates (dermatophytes) were cultivated on sabouraud Dextrose Agar (SDA) medium in 90mm petridishes. Five milliliter of water solution of each extract of the plants at concentrations, 10, 20, 40, 80 and 160 mg/ml, were aseptically mixed with 15ml of SDA (Liquified and maintained at melting point in water bath at 45^{o}C. Griseofulvin, positive control (Clarion medicals Ltd. Lagos, Nigeria), was measured from the pulverized 500 mg tablet. Five milliliter of water solution of griseofulvin at concentrations of 10 and 160 mg/ml were aseptically mixed with 15ml of SDA. After cooling and solidification of the medium, the seeding was carried out by inoculation of all the dermatophytes isolates in the middle of the petridishes. The treated and control petridishes were incubated at ambient laboratory condition for 21 days. Three replicates for each concentration were made. Growth was observed after 7 days. Water was used as negative control. Presence of growth (+) is a negative test (indicating the non - potency of the drug) and absence of growth (-) is a positive test (showing the potency of the drug).

Phytochemical screening of the plant extracts

Qualitative phytochemical analysis was carried out to determine the presence of flavonoids, tannins, saponins, alkaloids, glycosides, cardiac glycosides, saponin glycosides, antharaquinones, steroids and volatile oil according to the methods of El- Olemy et al., 1994; Trease and Evans, 1978; Harbone, 1973 and Wall et al., 1954.

Column chromatography of the plants extracts

This was carried out on *P. tomentosa and M. scaber* extracts. The lower end of a glass column 10cm long and 1.5cm in internal diameter was plugged with glass wool.

The plant material was poured on to the glass wool and air bubbles released was trapped with the flat end of a packed rod. The column was packed with wet silica gel by pouring the silica gel into the column in a stepwise manner. The side of the column was taped gently with a glass rod for compaction of the particles. As the silica gel settles, the column outlet was adjusted. Two (2g) of each sample was drawn into the adsorbent and eluted with distilled water. Five fractions were obtained each for chloroform and hexane extracts. Phytochemical analysis of the eluents was carried out according to the procedure of Brain and Tunner, 1975.

Assessment of antidermatophytic activities of the column chromatographic fractions

The antidermatophytic activities of the column fractions of *P. tomentosa* and *M. scaber* extracts was carried out using agar incorporation method (dilution on solid medium) according to the above procedures of Zacchino et al., 1999 and Hassan et al., 2007.

Determination of Minimum Inhibitory Concentration (MIC) of the active column fractions

The Minimum Inhibitory Concentration of the plant extracts that showed antidermatophytic activity was assayed using the standardized procedure described by Gbodi and Irobi, 1992; Ngono Ngane et al., 200; and Wokoma et al., 2007 with slight modifications. A total number of twelve test tubes (Khan Tubes) were used for the determination of MIC. The MIC was determined by the tube dilution technique. 1 ml of Sabouraud dextrose broth was dispensed into test tubes 2 to 12 each. From the stock solution of the plant extracts (160 mg/ml), 1 ml was dispensed into tube 1 and another 1 ml into tube 2. From the content in tube 2 serial dilutions were carried out up to the test tube number 10. From tube 10, 1m was pippeted out and discarded. The concentrations in the tubes were 160, 80, 40, 20, 10, 5, 2.5, 1.25, 0.625 and 0.3125 mg/ml. l ml of dermatophytes spore suspension of each of the test organisms previously diluted to give 10^5 spores per ml was dispensed into tubes 1 to 12 with the exception of tube 11. To tube 11 1 ml of sterile S.D.B. was added. Tube 1 which contained 1ml of the spore solution of the test organism and 1ml of the plants extracts served as control for the extracts. Tube eleven which contained 1ml of sterile S.D.B and another 1ml of S.D.B served as a control for the sterility of the medium. Tube twelve with 1ml of spore solution of the test organisms and 1ml of sterile S.D.B, served as a control for the viability of the test organisms. All the tubes were incubated at ambient laboratory conditions and growth was observed from 7 - 21 days. MIC was regarded as the concentration in the tube that fails to show evidence of growth (turbidity) just immediately after the last one that show growth.

Determination of Minimum fungicidal concentration (MFC) of the active column fractions

The MFC was determined by culturing the content of the tube cultures that showed no visible growth in the MIC determination test described above. A loopful of the mixture contained in the tubes was subcultured on freshly prepared Sabouraud dextrose agar plates and incubated at ambient laboratory conditions for 21 days. A control comprising the test organism grown on fresh agar medium was also set up. The minimum fungicidal concentration was regarded as the lowest concentration of the extracts that did not permit any visible colony growth on the agar medium after the period of re-incubation. The MFC test was set up in three replicates.

RESULTS

The results of crude antidermatophytic activity of aqueous extract of *P. tomentosa* tested at different concentrations of 10, 20, 40, 80 and 160 mg/ml is presented in Table 1. The extract was active on *Trichophyton mentagrophyte* and *Trichophyton rubrum* at all the concentrations employed 10, 20, 40 80 and 160 mg /ml. Griseofulvin at concentrations of 10 and 160 mg/ml showed total effect on the growth of only *Trichophyton rubrum*.

The results of crude antidermatophytic activity of aqueous extract of *M. scaber* tested at various concentrations of 10, 20, 40, 80 and 160 mg/ml is shown in Table 2. The aqueous extract exhibited high activity on *Trichophyton mentagrophyte* and *Trichophyton rubrum* at all the concentrations used. The extract was active on the growth of *Microsporum audouinii* and *Microsporum gypseum* at higher concentrations of 80 and 160 mg/ml. Griseofulvin (positive control) showed antidermatophytic effect on the growth of only *Trichophyton rubrum* at all the concentrations employed, while the drug had activity on *M. audouinii, M. gypseum* and *Microsporum species* at 160 mg/ml. The negative control did not show effect on the growth of the test isolates.

The results of qualitative phytochemical analyses of aqueous extracts of *Pergularia tomentosa* and *Mitracarpus scaber* (leaves) is presented in Table iii. The aqueous extracts of *P. tomentosa* revealed the presence of all the phytochemical constituents tested such as tannins, alkaloids, flavonoids, saponins, glycosides, saponin glycosides, cardiac glycosides, anthraquinones and steroids. Flavonoids and saponins were present in large quantities more than the entire phytochemical constituents' detected.

Similarly, qualitative phytochemical analysis of

Table 1. Antidermatophytic activity of aqueous extract of *Pergularia tomentosa*

Plant /control Conc.mg/ml	Growth of pathogens				
	T. rubrum	***T. mentagrophyte***	***M. audouini***	***M. gypseum***	***Microsporum sp***
10	-	-	+	+	+
20	-	-	+	+	+
40	-	-	+	+	+
80	-	-	+	-	+
160	-	-	+	-	+
Griseofulvin 10	-	+	+	+	+
160	-	-	-	-	-
Water	+	+	+	+	+

Key:
+ = presence of growth
- = Absence of grow

Table 2. Antidermatophytic activity of aqueous extract of *Mitracarpus scaber.*

Plant /control Conc.mg/ml	Growth of pathogens				
	T. rubrum	***T. mentagrophyte***	***M. audouini***	***M. gypseum***	***Microsporum sp***
10	-	-	+	+	+
20	-	-	+	+	+
40	-	-	+	+	+
80	-	-	-	-	+
160	-	-	-	-	+
Griseofulvin 10	-	+	+	+	+
160	-	-	-	-	-
Water	+	+	+	+	+

Key:
+ = presence of growth
- = Absence of growth

aqueous extract of *M. scaber* revealed the presence of all the phytoconstituents except cardiac glycosides and volatile oil. Flavonoids and saponins compounds were present in large quantities more than all the phytochemical compounds detected. The phytochemical analysis of organic solvents extracts of *P. tomentosa and M. scaber* are presented in Table 4*. P. tomentosa and M. scaber* were the most active plants among the screened plants for antidermatophytic activity, their phytochemical analysis of organic solvent extracts were determined. The chloroform and n hexane extracts of all the plants revealed the presence of all the phytochemcial compounds screened except volatile oil. Saponins and flavonoids compounds were present in large quantities. The results of quantitative phytochemical analysis of some phytochemica compounds of *P. tomentosa* and *M. scaber* are presented in Table 5. Saponins 4.44g, alkaloids 2.66g, tannins 2.00g, cardiac glycosides 2.94g, flavonoids 4.28 g, anthraquinone 2.33g and glycosides 2.51g. Similarly, quantitative phytochemical analysis of some phytochemical compounds of *M. scaber* are Saponins 4.32g, alkaloids 3.82g, tannins0.13g, cardiacglycosides 1.14 g flavonoids 4.51g, anthraquinones 2.33g and glycosides 2.44g.

Column chromatographic fractionations of *P. tomentosa* and *M. scaber* extracts (n hexane and chloroform) were carried out. The column fractions revealed five fractions in each extracts (n hexane fractions 1 to 5 and chloroform fractions 1 to 5). The antidermatophytic activities of column chromatographic fractions of *P. tomentosa* are indicated in Table 6. Only the active fractions of the column were presented in the table. The CHL4 fraction of the column was the most active fraction, the fraction was active against some of the tested organisms dermatophytes (*T. rubrum, T. mentagrophyte, and M. gypseum*). The HX2 fraction inhibited the growth of *T. rubrum and M. audouinii.*

The antidermatophytic activities of column chromatographic fractions of extracts of *M. scaber* are presented in Table 7. Only the active fractions of the column were shown. Each fraction was tested for antidermatophytic activities at different concentrations of 10, 20, 40, 80 and 160mg/ml, the CHL1 fraction of *M. scaber* showed high antidermatophytic activity on the

Table 3. Phytochemical contents of aqueous extracts of *P. tomentosa* and *M. scaber* (Leaves)

	Phytochemical compounds									
Plant extracts	**Tannins**	**Flavonoids**	**Alkaloids**	**Saponins**	**Glycosides**	**Saponin glycosides**	**Cardiac glycosides**	**Anthraquinones**	**Steroids**	**Volatile oil**
P. tomentosa	++	++	++	++	++	+	+	+	+	-
	+			++	++		-			-
		++	+			+		+	+	
M. scaber										

Key: - = absent, + = Trace amount, ++ = presence, +++ = presence in large quantity

Table 4. Phytochemical contents of organic solvents extracts of *P. tomentosa and M. scaber (*leaves)

		Phytochemical compounds									
Plants		**Tannin**	**Flavonoids**	**Alkaloids**	**Saponins**	**Glycosides**	**Saponin glycoside**	**Cardiac glycoside**	**Anthraquinone**	**Steroids**	**Volatile oil**
P. tomentosa	HX	++	+++	+	+++	+	++	+	+	+	-
	PE	+	+	+	+	+	+	+	-	+	-
	CHL	++	+++	+	+++	+	++	+	+	++	-
M. scaber	HX	++	+++	+	+++	+	++	+	+	+	-
	PE	+	+	+	+	-	+	+	-	+	-
	CHL	++	+++	+	+++	+	++	+	+	++	-

Key: - = Absence, + = Trace amount, ++ = presence, +++ = presence in large amount, HX = n hexane, PE = Petroleum ether and CHL = Chloroform

growth of *T. rubrum T. mentagrophyte and M. gypseum* from the least concentration used 10 mg/m. CHL2 fraction of column chromatography also showed activity against *T. rubrum and M.gypseum.* In this study, Both CHL4 and CHL1 fractions of *P. tomentosa and M. scaber* were more active than Griseofulvin. The minimum inhibitory concentration of the most active chloroform fractions (CHL4p and CHL1m) of P. tomentosa and M. scaber is shown in Table 8. Both fractions of the column revealed MIC values of 10 mg/ml against *T. rubrum, T. mentagrophyte* and *M. gypseum.* Griseofulvin shows low MIC value of 10 mg/ml against only *T. rubrum*. At 80 mg/ml there was inhibition of *T. mentagrophyte*.

Table 5. Quantitative phytochemical analysis of *Pergularia tomentosa* and *Mitracarpus scaber* (In g% w/v)

Plants (leaves)	Alkaloid	Tannins	Flavonoids	Saponins	Steroids	Cardiac glycosides	Glycosides	Saponin glycoside	Anthraquinone
Pergularia tomentosa	2.66	2.06	4.28	4.44	ND	2.94	2.51	ND	2.45
Mitracarpus scaber	3.82	I.13	4.51	4.32	ND	1.14	2.44	ND	2.45

Key = 0.01-2g% = Trace amount, 2-3g% = present, 3-4g% = present in large amount.

Table 6. Assessment of antidermatophytic activities of column chromatographic fractions of *P. tomentosa*.

Column fractions/ controls	Extract conc. (mg/ml)	Growth		
		T. rubrum	***T. Mentagrophyte***	***M. gpyseum***
HX2P	10	-	+	+
	20	-	+	+
	40	-	+	+
	80	-	+	-
	160	-	+	-
HX4P	10	-	+	+
	20	-	+	+
	40	-	+	+
	80	-	+	+
	160	-	+	+
CHL1P	10	+	+	+
	20	+	+	+
	40	+	+	+
	80	-	-	+
	160	-	-	+
CHL4P	10	-	-	-
	20	-	-	-
	40	-	-	-
	80	-	-	-
	160	-	-	-
Gs (positive control	10	-	+	+
	160	-	-	+
Water (-ve control)		+	+	+

Key: -= Presence of growth, + = Absence of growth, HX2P & HX4P = n hexane fractions 2&4, CHL1P & CHL4P = Chloroform fractions 1&4 of *P. tomentosa,* GS = Grisiofulvin

The results of minimum Fungicidal Concentrations followed the same pattern with that of MIC (Table 9).

DISCUSSION

The results of antidermatophytic activities of aqueous extracts of *P. tomentosa* and *M. scaber* Tables 1 and 2 showed promising antidermatophytic activity against *T. rubrum, T. mentagrophyte* and *M. gypseum* from the least concentration of 10 mg/ml used .This agrees with the findings of Hassan et al., 2007, in which aqueous extract of *P. tomentosa* was active against some fungal isolates including dermatophytes (*T. rubrum* and *M.*

Table 7. Assessment of antidermatophytic activities of column chromatographic fractions of *M. scaber*

Column fractions/ controls	Extract conc. (mg/ml)	Growth		
		T. rubrum	***T. Mentagrophyte***	***M. gpyseum***
HX4M	10	+	+	+
	20	+	+	+
	40	+	-	+
	80	+	-	-
	160	+	-	-
CHL1M	10	-	-	-
	20	-	-	-
	40	-	-	-
	80	-	-	-
	160	-	-	-
CHL2M	10	+	+	+
	20	+	+	+
	40	+	+	+
	80	+	-	+
	160	+	-	+
CHL4M	10	+	+	+
	20	+	+	+
	40	+	+	+
	80	+	-	-
	160	+	-	-
CHL5M	10	+	+	+
	20	+	+	+
	40	+	+	+
	80	+	+	+
	160	+	+	+
GS (positive contrl)	10	-	+	+
	160	-	-	+

Key - = Presence of growth + = Absence of Growth, HX4M = n hexane fractions 4, CHLM 1, 2, 4 and 5 = Chloroform fractions of *M. scaber, GS* =Grisiofulvin

Table 8. Minimum inhibitory concentration (MIC) in mg/ml of the active column fractions of the column chromatographic fractionation of *P. tomentosa* and *M. scaber*

fractions	MIC values (mg/ml)/plant		
	P. tomentosa* and *M. scaber		
	T. rubrum	***T. Mentagrophyte***	***M. gypseum***
CHL4p	10	10	10
CHL1m	10	10	10
Griseofulvin	10	80	-

Key: - = No MIC value, CHL4p & CHL1m = Chloroform fractions 4 & 1 of *tomentosa* and *M. scaber*

Table 9. Minimum Fungicidal concentration (MFC) of the most Active column fractions CHL4 and CHL1 of *P. tomentosa* and *M. scaber*

fractions	MFC values (mg/ml)/plant		
	P. tomentosa* and *M .scaber		
	T. rubrum	***T. Mentagrophyte***	***M . gypseum***
CHL4p	10	10	10
CHL1m	10	10	10
Griseofulvin	10	80	-

Key: - = No MFC value**,** CHL4p & CHL1m = Chloroform fractions 4 & 1 of the column chromatography of *P. Tomentosa* and *M. scaber.*

gypseum). Action of the aqueous extracts of *P. tomentosa* against the dermatophytes tested may be due to inhibiton of fungal cell wall due to pore formation in the cell and leakage of cytoplasmic constituents by the active components such as alkaloids, saponins, protein, amino acid and sphingolipid biosynthesis and electron transport chain Hassan et al., 2007. Findings from this work were also comparable with the work of Van-wyk, 1997, who reported that *M. scaber* is an effective antifungal agent and also revitalizes areas of hypopigmentation and hyperpigmentation. The results of qualitative and quantitative phytochemical analysis of *P. tomentosa* and *M. scaber* Tables 3, 4 and 5 revealed the presence of tannins, alkaloids, flavonoids, saponins, glycosides, saponin glycosides, cardiac glycosides, anthraquinones and steroids. Saponin and flavonoids were detected in large quantities. From this results it can be deducted that the presence of these active compounds in the plants extract especially saponins and flavonoids may be responsible for the promising antidermatophytic activities exhibited by the plants. Phytochemical compounds are known to possess antimicrobial properties as reported by Bouchet et al., 1982; Scalbert, 1991; Favel et al., 1994. Findings from this work also agreed with the work of Rojas et al., 1992; Hostetann et al., 1995 who reported that plants containing flavonoids triterpenoids and other phenolic compounds are reported to have antimicrobial activity. Similarly, Hostetmann and Nakanishi, 1979 have reported phenolic compounds terpenoids, steroids, alkaloids and flavonoids to have antimicrobial activity. Anthraquinones and flavonoids are used as antiseptics in certain skin diseases, example dry eczema and other fungal skin infections Shafik et al., 1976, this statement is in support of what was obtained in this work, where flavonoids compound happened to be one of the components isolated in large quantity. Similarly, Onoruvwe and Olurunfemi 1998 reported that the alkaloids, saponins and flavonoids compounds of *Dichrostachys cinerea* leaves extract contain antibacterial and antifungal activities. Preliminary works and other reports showed saponins and flavonoids possess antioxidant and antimicrobial properties Morebise and Fafunso, 1998 Hemandez et al., 2000. The mechanism (s) of action of constituents of the organic solvents fractions of these plants could probably be by already known mechanisms such as inhibition of electron transport chain, sphingolipid biosynthesis of fungal cell wall, Lartey and Mochle, 1997; Ueki and Taniguchi, 1997; Dominguez and Martin, 1998.

The hexane and chloroform extracts of *P. tomentosa and M. scaber,* which exhibited high antidermatopytic activities, were further fractionated into different fractions using column chromatograpahy. The antidermatophytic activities, minimum inhibitory concentrations and minimum fungicidal concentrations of the fractions were tested (Tables 6 and 7) The two fractions of the column CHL4 and CHL1 of *P. tomentosa* and *M. scaber* proved to be the most active fractions among the tested fractions in controlling growth of *T. rubrum, T. mentagrophyte* and *M. gypseum* at 10 mg/ml . It was found that the organic solvent extracts of *P. tomentosa* and *M.scaber* were more potent than griseofulvin in controlling growth of the dermatophytes. Similar observations were made by Wokoma et al., 2007; Mukhtar and Huda, 2005, who found garlic and lettuce *(Pistia stratiotes*) extracts though different plant species to be more portent than griseofulvin.

CONCLUSION

The results of antidermatophytic activities of aqueous extracts of *P. tomentosa* and *M. scaber* Tables 1 and 2 showed promising antidermatophytic activity against *T. rubrum, T. mentagrophyte* and *M. gypseum* from the least concentration of 10 mg/ml used. The results obtained for qualitative phytochemical analysis of the *Pergularia tomentosa* and *Mitracarpus scaber* revealed the presence of phytochemical compounds such as tannins, alkaloids, flavonoids, saponins, glycosides, saponin glycosides, cardiac glycosides, anthraquinones and steroids. The Saponins and flavonoids compounds were present in large quantities when the quantitative phytochemical analysis was conducted. Column chromatographic fractionation of the active plants revealed the active fractions as chloroform fraction four

(CHL4P) and chloroform fraction one (CHL1M) for *P. tomentosa* and *M. scaber* respectively. The two fractions when tested were active against *Trichophyton rubrum*, *T. mentagrophyte* and *M. gypseum*. This showed that the bulk of the active components may be in the two fractions of the column CHL4 and CHL1. Further studies on the chemical structure of the active compounds in the two selected fractions are encouraged.

ACKNOWLEDGEMENTS

Special thanks go to Almighty Allah for giving me the opportunity and ability to see to the compilation of this paper. I would also like to appreciate the efforts made by my Lecturer, Mentor and Supervisor in person of Professor. S. B. Manga, for making useful corrections and suggestions towards the success of my research work.

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