CHAPTER – VI

DESCRIPTION OF IMPORTANT DISEASES
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Leaf spot of *Adina cordifolia* Roxb.
(Plate No. 1a, b Fig. 8)

*Adina cordifolia* (Rubiaceae) is a deciduous tree. Because of its cordate shaped leaves species none as *Adina cordifolia*. Flowers in globose heads white. Heads 1-3 fascicled axillary.

The wood of this plant is yellow in colour, moderately hard & grained. The wood is economically important and used for making furniture, agricultural parts & boxes. Villager also use for also use for fuel. Plants are found scattered in mixed forest of Mandla.

The leaf spot disease of *Adina cordifolia* is very severe in Mandai, Jhalpani, Bhanpur, Jugthar (East & West Forest division of Mandla) in the month of Sept to April.

\[ T=17 \leq 14 \]

**Symptoms:**

Numerous lesions appear as a pin head like pinkish brown dots, all over the leaf surface. Spot increase in size and merged together and become irregular. The marginal portion of leaves much affected by the disease due to high severity premature leaf fall takes place.

**Causal Organism:**

Infection spots amphigenous, small to large, circular to irregular, calonies epiphyllous: stromata well
PLATE - 1a: Leaf spot of *Adina cordifolia* caused by *Pseudocercospora adianti*

PLATE - 1b: Close up of the lesion
Fig. 8 - *Pseudocercospora adianti* H. Syd.
A- Conidiophores, B- Conidia
developed, partly immersed, partly erumpent, sometimes superficial; Setae and hyphopodia absent; Conidiophore, caespitose, macronematons, erect, unbranched smooth walled, light to mid olivaceous, 12 – 150 x 2-6. 5 μ m ; Conidiogenous cells intergated, terminal often monoblastic later polyblastic, sympodial & denticulate with short, broad conical denticles and no scars ; Conidia simple solitary, dry, cylindrical to lenticular, smooth walled upto 15-10 transverse septate, apices subacute to obtuse 3-160 x 2-4 μ m.

On living leaf of *Adina cordifolia* Rox. (Rubiaceae) ; Feb, 98; Jhalpani, Bhanpur (East Forest Division Mandla), Jugthar, Mandai (West Forest Division Mandla) MP, India ; leg R. Agrawal, SNVAR 111 isotype HCIO – 42727 Holotype.

On the basis of detailed morphological characteristics it was found to be close to *Pseudocercospora adianti* (H. & Syd) Deighton P. adianti (H. & Syd) Delighteon has been earlier reported on the living leaflets of *Adiantum sp.* Amboli by Patil & Thite (1978).

Therefore it is new host combination for this fungus from India.
Leaf spot of *Anogeissus latifolia* wall

(Plate No. 2a,b Fig. 9)

The plant *Agonizes latifolia* (Combretaceae) is erect moderate sized tree with grayish – green cracked bark. Leaves glabrous green. Flowers sessile small aggregated in cymose heads, yellowish.

The plant having so many Medicinal & economic importance these are following –

**Medicinal Uses** :-


**Economic Importance** :

Gum, used for sizing paper and calico printing. Wood used for axles, shafts, poles and agricultural implements (Ambasta 1986), railway sleepers, cup boards. It is excellent raw material for Paper making for making Charcoal & wood alcohol.

The leaf spot disease on *Anogeissus latifolia* is found in Bhanpur, Ghugri (West Forest Division Mandla),
Manadai (East Forest Division Mandla) in the month of Oct. to March.

**Symptoms:**

The infection spot are very small, irregular brown in early stage. Later spots spread rapidly increase in size and became darker. Number of spots may coalase and become irregular in shape measuring upto 10 mm in dia. The mature spots has dark brown boundry with light brown colour in centre.

**Causal Organism:**

Lesions amphigenous, small to large converying the whole leaf surface; colonies epiphyllous, brownish, effuse; stomates erumpent, pseudoparenchymatons. mid olavaceons 8 to 25 μm in dia; Setae and hyphopodia absent; Conidiophore caespitose in loose fascicles, some time on repent hyphae, solitry macronematous when astromatic, mononematic, mononematous; Conidiogenous cells integrated, terminal often monoblastic later polyblastic, sympodial & denticulate with short, broad conical denticles and no s cars; conidia simple, solitary, light olivaceous, cylindric to fusiform, dry smooth walled 1-5 transversely septate apices subacute with obconicotrumcate base. Hila thickened 2-22 x 1-2μm.
PLATE -2a : Leaf spot of *Anogeissus latifolia* caused by *Mycovellisialla acori*

PLATE -2b : Close up of the lesion
Fig. 9 - *Mycovellisialla acori*
A- Conidiophores, B-Conidia
On living leaf of *Anogeissus latifolia* wall. Combretaceae; Jan 1997; Bhanpur, Ghugri (West Forest Division – Mandla) Mandai (East Forest Division Mandla), M.P., India; leg R. Agrawal; SNVAR 113 isotype, HClO 42729 Holotype.

On the basis of detailed morphological characteristics it was found to be close to *Mycovellisialla acori*. 
Leaf spot of *Azadiracta indica* A. Juss.
(Plate No. 3a,b Fig. 10)

*Azadirachta indica* is the member of family meliaceae. It is large evergreen tree. Leaves pinnatly compound, leaflets 9-15, subopposite, obliquely lanceolate, serrate, acuminate. Flowers white. It is economically, religiously & medicinally important plant of mixed forest of M.P.

**Medicinal Uses:**


Flower : Indigestion

Fruit : Febrifuge, Leprosy, Piles, Skin diseases.

Seed : Antiseptic, Skin diseases, Foul ulcers.

Seed oil : Debility, Skin diseases, Foul Ulcers.

Economic importance:

Wood is used for making furniture, timber, wheels of carts, plow, toys & as a fuel.

The leaf spot disease has been seen on this plant in Khairi, Bhanpur, Ghugri (East Forest Division - Mandla) in the month of Jan. to April.

Symptoms:

Infection spots are amphibogenous which appear small to large spots, circular to irregular becoming necrotic with age and in last stage of diseases shot hole formed. The spots are brown to dark brown to dark brown, marginal part of leaf is much demaged by the diseases than middle vein region.

Causal Organism:

Colonies hypophyllous when young becoming amphiphyllous with age; Setae and hyphopodia absent; stromata well developed, irregular, pseudoparenchymatous, olivaceous 40.2 µm; Conidiophore Caepitose, 1 to 5 septed, unbranched, subhyline to light olivaceous 12-42 × 2.5 - 4 µm; Conidiogenous cells integrated, terminal often monoblastic later polyblastic, sympodial & denticate with short, broad conical denticles and no scars; Conidia simple, Solitary, dry acropleuogenous, subhyline to ligh olivaceous upto 6 transversely septate, obclavate to
PLATE -3a : Leaf spot of *Azadirachta indica* caused by *Pseudocercospora meliae*

PLATE -3b : Close up of the lesion
Fig. 10 - *Pseudocercospora meliae* Rai and Kamal
A- Conidiophores, B- Conidia
clavato – cylindric, straight to rarely curved apices subacute to obtuse hila unthickened. 10-80 x 2.5 –3.5 μm.

On living leaf of *Azadirachta indica* A. Juss. (Meliaceae) ; March 1997 ; Khairi, Ghugri, Bhanpur (WFD Mandla) ; M.P. India ; leg R. Agrawal ; SNVAR 98 holotype.

On the basis of detailed morphological characteristics it was found to be close to *Pseudocercospora meliae* (Rai & Kamal). *P. meliae* previously reported on leaves of *Azadirachta indica* from Gorakhpur (U.P.) by Rai & Kamal (1982), This has not previously been reported from Madhya Pradesh.
Sooty molds of *Aegal marmelos*

(Plate No. 4a,b Fig. 11)

*Aegal marmelos* is a member of family Rutaceae. It is a thorny deciduous medium sized tree. Leaves -3 foliolate; leaflets petiolulate, ovate - lanceolate, 5-10 cm. long subentire. Floweres in lateral of subterminal panicles rings whitish,

**Medicinal Uses** -

Leaf : Eye diseases, Abscess, Backache. Wound, Diabetes, Jaundice, vomiting.

Flower : Dyesentery

Unripe Fruits : Stomachache, Diarrhoea, Dysentery.

Ripe Fruits : Constipation, Astringent.

Bark : Diarrhoea, Dysentery.


**Economic importance** -


Sooty molds of *Aegal marmelos* is found in Bhanpur (W. F. D. Mandla) in the month of Nov to March.
Symptoms:

Infection spots epiphyllous, scattered, black, superficial, firstly circular to irregular then becoming large & coalesing with age to cover major portion of leaf.

Causal organism:

Sporodochia pulvinate, sometimes confluent, dark blackish brown to black; Mycelium immersed; Stroma present, erumpent brown, pseudoparenchymatous; Setae and hyphopodia absent; Conidiophores macronematous or semi-macronematous, merstematic, growth in length taking place by a laying down of cross walls and elongation of cells just behind the apex, unbranched or occasionally loosely branched, usually short, straight or flexuous, closely packed together forming sporodochia, pale to mid brown, smooth rugulose or verruculose; Conidiogenous cells integrated, terminal roughly cylindrical, fragmenting; Conidia formed in branched, basipetal chains, schizogenous, dry, simple, branched, forked or lobed, straight or flexuous, very variable in shape, cylindrical rounded at the apex, ellipsoidal, clavate, pyriform, sub-spherical, etc., pale to dark brown or olivaceous brown, smooth or verruculose, with transverse and often longitudinal or oblique septa, 10-35 x 3-8 μ
PLATE -4a : Leaf spot of Aegal marmelos caused by *Trimmatostroma* sp.

PLATE -4b : Close up of the lesion
Fig.11 - *Trimmatostroma sp.*
On living leaf of *Aegal marmelos* (Rutaceae); Bhanpur; (W.F.D. Mandla) M. P. India; Jan 98; leg. R. Agrawal SNVAR 112 isotype 42428 Holotype.

On the basis of detailed morphological characteristics it was found to be close to *Trimmatostroma sp.* Out of recorded 6 species of *Trimmatostroma*, 5 have been reported on dead stem and leaves of different plants. Only one has reported on the foliage leaves of *Pinus roxburghii*, by Bakshi et al., (1972) from Deharadun (U.P.). On the living leaf of *Aegal Marmelos*, *Trimmatostroma sp.* has been firstly reported. Therefore it is a new host record for India. The species of present fungi could not be identified with all available literature and therefore appeared to be new fungal species. This will however need further detailed investigation.
Rust of *Albizia procera* L.

(Plate No. 5a,b Fig. 12)

*Albizia procera* is member of a family Mimosaceae. Plant is a Deciduous tree with greenish white or brownish bark. Leaves with 3-6 pairs of pinnae; leaflets 5-11 pairs, broadly oblong or even roundish, 25-55 x 15-30 mm, deciduously hairy. Panicles 10-30cm. long; heads white.

**Economic importance** -

Its wood is used for furniture, interior decoration, tea-boxes, railway carriages bridge construction agricultural implements and for manufacturing writing and printing paper,

The Rust disease of *Albizia procera* is severe in Darbara, (West Forest Mandla), Mohagaon, Motinala Ghugri (Eastern Forest Mandla) in the month of Dec to March.

**Symptoms**:

Infection start as minute a pin head like spot, during the disease brown to dark brown rust pustules are visible in the upper surface of the leaf. At the period of severity of disease rust pustules covers the maximum portion of leaf.
PLATE -5a : Rust of Albizzia procera caused by Ravenalia sessiles

PLATE -5b : Close up of the lesion
Fig. 12 - Uredospore of Ravenalia sessilipes berk
Causal Organism:

The causal organism identified as *Ravenelia sessiles* (Berk.).

On living leaf of *Albizia procera* (Mimosaceae); Jan 99; Darbara, Motinala (West Forest Division, Mandla) Mohagaon, Ghugri (East Forest Division, Mandla) M. P., India; leg. R. Agrawal SNVAR 210 isotype.

On the basis of detailed morphological characteristics it was *Ravenelia sessiles* (Berk). *R. sessiles* Berk. has been earlier reported on the same host *A. procera* by Tyagi and Prasad (1972) from Udaypur, Rajasthan. But it is first time reported from M.P. on this host.
Leaf spot of *Bauhinia malabarica* Roxb. S
(Plate No. 6a,b Fig. 13)

*Bauhinia malabarica* (Papilionaceae) is a small bushy evergreen trees with greyish brown and pink-red blaze. Leaves lobed 3-10 cm broad, cordate at the base. Flowers in tomentose subcorymbose recemuses, white, slenderly pedicelled.

The medicinal & Economic importance are following:

**Medicinal Uses:**

Bark : Scrofula, Cutaneous truble, Dysentary, Diarrhoea, Ulcer, Leprosy, Syphilis. Tumours, skin diseases, Bleeding piles.

Root : Obesity, Indigestion, Flatulence.

Dried Bud : Piles, Dysentery, Diarrhoea, Worms.

**Economic importance:**

The bark of *Bauhinia malabarica* yield tannin of commercial importance.

The wood of this plant is used for carving turnery & toys.

The leaf spot disease of B. M. is found in Bhanpur, Mohgaon ghugri (E. F. D. Mandla) in the Month of Nov to March.
PLATE -6a: Leaf spot of Bauhinia malbarica on Stigmina phaeocarpi

PLATE -6b: Close up of the lesion
Fig. 13 - *Stigmina phaeocarpi* (Mitter)
A - Conidiophores, B - Conidia
Symptoms:

Infection spots, amphigenous, small to large, irregular. Coalescing with age, spots are brown. Generally symptoms appear in the Month of September-October and remains up to leaf fall. In the stage of severe of disease much portion of leaf affected.

Causal Organism:

Colonies epiphyllous; Stromata well developed, partly imersed & partly erumpent, Pseudoparenchymatous, mid oliveaceous, 18-98 μm in dia; Conidiophore caespitose, densely packed together 5-21 x 3-4 μm with up to 4 annellations; sporodochia, macronematous, mononematous, erect to sub erect, mostly ascetate, unbranched, smooth walled, light olivaceous 2-50 x 1.5-6 μm; conidiogenous cell terminal, monoblastic, cylindric; Conidia brown with pale beaks, smooth, with 1-12 transverse and sometimes 1-2 oblique septa, 18-125 x 5-8 μm.

On living leaf of Bauhinia malabarica Roxb. (Papilionaceae); Feb. (1998); Bhanpur, Mohgaon, Ghugri (East, Forest Division Mandla), M. P.; India: SNVAR No. 114 isotype, HCIO- 42731 holotype.

On the basis of detailed morphological characteristic it was found to be close to Stigmina phaeocarpi (Mitter) Ellis. In M.P. S. phaeocarpi has been
earlier reported on the leaf of *Buahinia variegata* by Agrawal & Sahini from Jabalpur M. P.

So far there is no record of *Stigmina phaeocarpi* on *Bauhinia malabarica*. Therefore it is new host record.
Leaf spot of *Buchanania lanzan* Spreng

(Plate No. 7a,b Fig. 14)

*Buchanania lanzan* (Anacardiaceae) is a moderate-sized tree; young branches clothed with silky hairs. Leaves alternate, thickly coraceous, obtuse. Flowers sessile & small.

The medicinal & economic importance of *Buchanania lanzan* is following:

**Medicinal Uses:**

- **Bark**: Cuts, skin diseases, snake-bite, wounds.
- **Root**: Venereal complaints, Blood diseases.
- **Leaf**: Wounds, Blood purifier.
- **Seed**: Pimples, Skin diseases, Gleet, Fever.
- **Seed oil**: Skin diseases
- **Gum**: Diarrhoea.


**Economic importance:**

Wood used for small beams, match boxes and bedsteads & for fuel. Tree yields a gum suitable for dressing textiles and for tanning. Leaves used as fodder (Ambasta 1986).
The leaf spot diseases of *Buchanania Lanzan* is occurred in Medhha and Bhanpur (East Forest Division of Mandla) in the Month of Nov. to March.

**Symptoms:**

Leaf spot amphigenous. Firstly spots are small then become large sometimes effuse together. Generally spots are circular to irregular with concentricings. Lessons become Nacrotic with age. Spots are Greyish brown in colour.

**Causal organism:**

Mycellium immersed, branched, septate, brown, conidiomata eustromatic, cupulate, separate or confluent, black or dark brown, at first immersed than erumpent, composed of thick walled, dark brown texture angularis, giving rise to thinner- walled, Paler tissue in the condigenous region. Dehiscence irregular; Conidiophores hyaline, branched irregularly, septate, smooth, formed from the upper cells of the Pseudoparenchyma; Conidiogenous cells holoblastic, annellidi, indeterminate, intergrated, cylindrical, hyaline, smooth, with 1-2 percurrent Proliferations, Conidia fusiform, straight or slightly curved, 4 celled basal cell hyaline, thin – walled, truncate, with an endogenous, cellular, simple or dichotomously branched appendage; apical cell conic, cell conic, thin – walled hyaline, with 2-6 apical, simple or
PLATE -7a : Leaf spot of Buchanania lanzan caused by Pestalotia versicolor

PLATE -7b : Close up of the lesion
Fig. 14 - *Pestalotia versicolor* (Sepg)
A- Vertical section of Conidioma, B- Conidia
dichotomously branched appendages; median cells separated from ends cells by eusepta but from one another by distosepta; lumina reduced, medium brown.

On living leave of Buchanania lanzan Spreng. (Anacardiaceae); Jan. 98; Medha, Bhanpur (East Forest Division of Mandla) M.P., India; leg R. Agrawal, SNVAR 218 isotype.

On the basis of detailed morphological characteristics it was found to be close to pestalotia versicolor (sepg.). P. versicolor Sepg. Has been earlier reported by Gaur & Chenulu (1981) from New Delhi on Storaged Solanum tuberosum, on living leaves of Typha angustala from kengri, karnataka by Rangaswami et. al. (1970), on leaves of Carissa sp by Ramakrishanan & Subramaniam from karwar karnataka (1952), on Anogeissum sp. from Haliyal mysore & Achrassapota, Hessarghatta, Mysore by Rangaswami et. al. (1970), on Syzygium caminii from Allahabad (U.P.) by Gilgrami & Dube (1966), on Terminalia tomentosa from Jabalpur (M.P.) by Hasija (1964), on Acharas sapota by Vilson et. al. (1970) from Kerala, on stored fruits of Mangifera indica from Jabalpur (M.P.) by Ratnam & Nema (1967), on the same host plant Buchanania lanzan from Jodhpur, Rajasthan by Vyas & Panwar (1974). But it is firstly reported from the forest of Mandla region.
Leaf spot of *Butea monosperma* Taub.

(Plate No. 8a,b Fig. 15)

*Butea monosperma* is the member of family (Papilionaceae). It is moderate sized deciduous tree. Leaves stipellate; both stipules and stipels tomentose. Leaflets 3, rhomoboid or broadly obovate from a cuneate base. Flowers bright orange – red. This plant is also famous by the name flam of the forest. Because in the month of Feb. March when flowering takes places the hole forest looks like burning due its orange – red coloured flower that’s why it is known as flam of the forest.

The tree is economically useful. Leaves, wood, bark, root every part of plant is useful.

**Medicinal Uses:**

**Root** : Night blindness, Elephantiasis,

**Bark** : Dusentery, Piles, Hydrocele, Ulcer,
Tumours, Biliousness, Dysmenorrhoea,
Liver disorders, fractures, Gonorrhoea,
Blood purifier.

**Leaves** : Eye diseases, Lessens inflammation,
Lumbago, Boils, Piles, Rheumatic – pain.

**Fruit** : Urinary discharges, Piles, Skin – diseases.
Tumours, Abdominal troubles, Scorpion sting, Gonorrhoea, Sterility.
Flower : Leprosy, Strangury, Gout, Skin diseases, Gonorrhoea, Sterility.

Seed : Urinary discharge, Piles, Skin diseases, Tumour, Abdominal troubles, Ring worm, Eye diseases, Ascaris - disease, Ulcer, Scarce throat, Leucoderma.


**Economic importance :**

From the roots villagers make Kuchi which used in white - wash as a bush. Wood is use for fuel. On its leaf & branches lacs insect grow suitability so tree is very importance for lac propagation.

The leaves of *Butea monosperma* are used for making cups & plates (Dona - pattal) all over the India.

The leaf spot disease is observed on this plant in Manadai & Jugthar (West forest Division Mandla) in the month of Oct. to March.
PLATE -8a: Leaf spot of *Butea monosperma* caused by *Astromella butae*

PLATE -8b: Close up of the lesion
Fig. 15 - *Astromella butae* (Singh)
A- Pycnidia, B- Section through pycnidia
Symptoms:

The infection spots are observed all over the surface firstly spots are brown in colour at maturity, these spots became pinkish in colour with dark brown zonation – Spot are irregular & small to large in size. A number of spot may coalesce.

Pycnidia are epiphyllous & black had been seen by naked eyes in the form of black dots.

Causal Organism:

Infection spots are amphigenous, colonies hypophyllous, black in colour, more or less. punctiform irregular; Pycnidia immersed, spherical to subglobe, unisteolate, single 50 – 130 μm in dia., pycnidia wall 1-65×1.5 μm.

On living leaves Butea monosperma Taub. (Papilionaceae); Dec. 1998; Manadia & Jugthar (West Forest Division - Mandla) M.P., India; leg R. Agrawal; SNVAR 120, Isotype.

On the basis of detailed morphological characteristics it was found to be close to Astromella butae (Singh). A butae Singh has earlier been reported as parasitic fungus on the same plant by Singh (1978) from the forest of Balaghat (M.P.). but it was first time reported from the forest of Mandla region.
Leaf spot of *Carissa spinarum* L.

(Plate No. 9a,b Fig. 16)

*Carissa spinarum* is the member of family Apocynaceae. It is a bushy small, diffuse, evergreen shrub with spreading branches. Leaves opposite coriaceous, ovate, acute. Flowers pentamerous, in a few flowered terminal and auxiliary, corymbose cymes.

The plant have so many Medicinal & Economic importance these are following –

**Medicinal Uses:**


**Economic importance:**

Fruit used as vegetable (Jain 1991). Leaves rich trannin. Wood used for making combs; spoons and other such widely used for fences (Ambasta 1986).

The leaf spot disease of *Carissa spinarum* is found in Amatola, Manadia (West Forest Division - Mandla) in the month of Nov. of April.

**Symptoms:**

Infection spots are amphigenous, small to large regular to black in colour usually starting from the margin
PLATE -9a : Leaf spot of *Carissa spinarum* caused by *Monochaetia carissae*

PLATE -9b : Close up of the lesion
Fig. 16 - *Monochaetia carissae* (Munjal & Kapoor)
A-Conidia, B-Conidiogenous cell and developing conidia
& covering the major portion of the leaf. In maturity red zonation has been seen around the black spot & ash coloured spot has been seen in the centre of black spot.

Causal organism:

Mycelium immersed, branched, septate, pale brown to hyaline; Conidiomata acervular, separate or confluent, ± circular or linear, composed of brown thin-walled textura angularis. Dehiscence irregular; Conidiophores hyaline, cylindrical, straight or curved, sparsely branched and septate only at the base, formed from the upper cells of the conidiomata; Conidiogenous cells holoblastic, annellidic, with several apical annellations, indeterminate, discrete, more rarely integrated. hyaline, cylindrical; Conidia 4 - euseptate, apical and basal cell hyaline, median cell thick walled. brown, smooth, continuous or constricted at the septa, at the base with an unbranched, cellular, usually short, central appendage, at the apex with a simple or branched, cellular. filiform appendage. 22-24 x 7.5 – 8.5 M apical appendage simple 11-15 M long; basal appendage 4-9 M long.

On the basis of detailed morphological characteristics it was found to be close to *Monochaetia carissae* M. Carissae has been earlier reported on the same host *C. spinarum* by Sahni (1965) from Jabalpur M.P., on another host *Carissa carandus* by Munjal & Kapoor (1962) from Simla, (H.P.). It is firstly reported from the forest of Mandla region.
Leaf spot of *Cassia fistula L.*

(Plate No. 10a,b Fig. 17)

*Cassia fistula* is the member of family Caesalpiniaceae. Moderate sized deciduous tree. Leaflets 4-8 pairs, ovate - acute. Flowers large, yellow. It is very common tree in forest and also grown under the social forestry programme on the road side.

Plant have economic & social, medicinal value-

**Medicinal Uses:**

Root : Skin diseases, Leprosy, Swell of throat,

Tuberculous glands, Syphilis.

Leaves : Rheumatism, Snake bite, Erysipelas, Ring worm.

Fruit : Leprosy, Heart diseases, Toothache,

Abdominal pains, Abortifacient, Chest complaints, Throat troubles, Snake bite,

Lover complaints, Eye diseases, Pimples,

Rheumatism, Asthma, Diarrhoea.

Seed : Antifertility, Gargle, Jaundice, Vermicid.

Bark : Blindness, Dog - bite, Diarrhoea.

**Economic Importance:**

Wood for house construction. Bark for tanning

(Jain 1991).
The leaf spot disease has been seen on this plant in Bhanpur, Manadai E & W.F.D. Mandla in the month of Oct. to April.

Symptoms:

The symptoms firstly appears as a small brown sports on the upper side of leaf in the month of October increase in size gradually. Spots are brown having concentricring irregular in shape. The marginal part of leaf is more effected in comparison to middle vein area. Disease remains upto leaf fall.

Causal Organism:

Infection spot amphigenous, small to large, brownish having concentricring ; Colonies hypophyllous, effuse, brown ; stromata developed, more of less superficial, pseudoparenchymatous, mid olivaceous, 12-17 in diam ; Conidiophores mostly caespitose to solitary emerging through stromata, small fasciles with loose groups, macronematous, mono nematous, erect to suberect, septate smooth walled, geniculate brown rarely branched, light mid olivaceous 34 – 146 x 2-4 μm Conidiogenous cells, integrated, terminal, poly blastic, geniculate ; Conidia simple, solitary, dry, acrogenous, brown, thickwalled, cylindrical 9-20 septa to oblclavate with rounded apex base trucate straight to slightly curved,
LATE -10a : Leaf spot of *Cassia fistula* caused by *Stenella cassiae*

PLATE -10b : Close up of the lesion
Fig. 17 - *Stenella cassiae* Kamal & Kumar

A-Stroma, B-Conidiophores, C-Conidia
apices acute to obtused, 12-115 x 2.5 –6 μm transversly septate.

On living leaves of *Cassia fistula* (caesalpiniaceae); feb. 98; Bhanpur, Mandai (E & W.F.D. Mandla); M.P., India; leg. R. Agrawal, SNVAR 115, isotype, HCIO 42731, Holotype.

On the basis of detailed morphological characteristic, it was found to be close to *Stenella cassiae* (Kamal & Kumar). *S. cassiae* Kamal & Kumar has earlier been reported on the same host plant *Cassia fistula* by Abbasi & Shukla (1980), by Kamal & Kumar (1978) from Taraibelt of U.P. Kamal *et. al.* (1980). Therefore it is new host record for (Mandla) M.P.
Powdery Mildew of *Dalbergia sissoo* L. F.

(Plate No. 11 Fig. 18)

*Dalbergia sissoo* (Papilionaceae) is a deciduous tree. Leaves alternate, befoarious, imparipinnate; leaf lets 3-5, alternate, broadly elliptic, ovate. Flowers in penicled recemes, small, yellowish. The plant is also planted on the road side under the social forestry programe.

The medicinal & economic importance of this plant are as follows –

**Medicinal Uses** -


Leaves : Eye disease.

Wood : Eye diseases, Scabies, Syphilis, Stomach trouble (Kirtikar Basu 1975)

**Economic importance** –

Wood used for railway sleepers, musical instrument fuel woods, also very suitable for charcoal making yields, a fixed oil (Ambasta 1986), leaves used as fodder.

The powdery mildew. of *Dalbergia sissoo* is found Manadai, Khaire road side (West Forest Division Mandla) in the month of Oct to April.
Symptoms:

The symptoms of powdery mildew appears in the lower surface of leaf in form powdery patches, then rapidly form oidal stages & cover the entire leaf surface, during the course numerous black small cleistothecia are formed.

Causal organism:

Anamorph: ovulariopsis – type. Mycelium on leaves, amphigenous, usually hypophyllous, white, effuse or in patches, later confluent and turning to white greyish, sometimes covering entire surface of the leaves, persistent. Appressoria indistinct. Conidiophores erect, long and slender, sometime flexuous 100-120 x 7-12μm: toot-cells spirally twisted. 45-55 x 4-10 μm, followed by 3-4 short slender cells. Conidia formed singly, clavate to ob lanceolate 50-65 x 12-18 μm: ferm tube arising from the side of the conidium, long, thin, ulightly spiral, without terminating into appressorium.

Teleomorph: Ascomata cleistothecial, scattered to sub-gregarious brown to dark brown, globose to sub-globose. Asci 5-12 per ascoma, prominently stalked, 35-38 x 20-30 um: ascospores ellipsoid-ovoid 15-20 x 8 – 14.

On living of Dalbergia sissoo L. F. (papilionaceae); Feb 97: Manadai, Kaire road side (West
PLATE -11: Powdery mildew of Dalbergia sissoo caused by Phyllactinia dalbergiae
Fig.18 - *Phyllactinia dalbergiae* Pirozynski
A-Conidiophore, B-Conidia, C-Ascomata
D-Ascus, E-Ascospore
Forest Division Mandla) M. P., India; leg. R. Agrawal; SNVAR 255 isotype.

On the basis of detailed morphological characteristics it was found that causal organism is *phyllactinia dalbergiae* pirozynski. It was earlier recorded from Dehradoon, Allahabad (U. P.), Pusa, Bihar, Poona, Bombay & Nagpur (M. S.) (Pirozynski, 1965).
Sooty molds of *Diospyros melanoxylon* Roxb.

(Plate No. 12a,b  Fig. 19)

*Diospyros melanoxylon* is a member of family Ebenaceae. It is a Medium sized tree. Leaves broadly ovate. Male flowers in subsessile drooping cymes. Female flowers solitary auxiliary.

This plant have following importance-

**Medicinal Uses:**

Leaves : Epistaxes, Night blindness, Ophthalmia, Trichaiasis, Scabies, Wound, Urinary & Skin troubles.

Flower : Leucorhoea, Urinary discharges, Skin diseases, Scabies, Anaemia,

Bark : Diarrhoea, Indigestion

Seed : Cough, Spermatorrhoea, Urinary, Skin and blood diseases, Dysentery.


**Economic Importance:**

PLATE -12a : Sooty molds of *Diospyros melanoxylon* caused by *sarcinella* sp.

PLATE -12b : Close up of the lesion
Fig. 19 - *Sarcinella sp.*

A - External hyphae, B - Conidiophores,
C - Conidia, D - Hyphopodia
The leaf spot diseases of *Diospyros melanoxylon* is found in Manadai, East Forest Division, Mandla in the month of Nov. to May.

**Symptoms:**

Colonies scattered, epiphyllous, black, superficial firstly small than becoming large and coalescing with to cover the leaf surface, some places overloaded with black powdery masses.

**Causal organism:**

Colonies effuse, Pale to dark blackish brown; Mycelium superficial, composed of a network of thick branched and anastomosing hyphae; stroma non; Hyphopodia Present, 12-14 x 10-12μm Conidiophores micronematous, unbranched, straight, brown, smooth, 6-10μ thick; Conidiogenous cells monoblastic, intergrated, terminal or intercalary, determinate, cylindrical; Conidia solitary, dry acrogenous or pleurogenous, simple, subspherical or irregularly sacinisform, dark brown, smooth, muriform, septa cruciately arranged, 22-30 x 18-26 μm.

On living leaf of *Diospyros melanoxylon* Roxb. (Ebenaceae) : Dec. 98; Manadai (E. F. D.Mandla) M. P., India; leg R. Agrawal; SNVAR 216 isotype.
On the basis of detailed morphological characteristics it was found to be close to *Sarcinella sp.* Ellis. The species of present fungi could not be identified with all available literature and therefore appeared to be new fungal species. This will however need further detailed investigation.
Sooty mold of *Eleodendron glaucum* Pers  
(Plate No. 13a,b Fig 20)

*Eleodendron glaucum* (celastraceae.). Leaves Opposite, elliptic & coraceous, yellowish attaining large dimensions. Bark is grey or blackish. It is a moderate sized deciduous tree occurs in the forest, scattered and sometimes in the barren land.

The uses of this plans are as follows:

**Medicinal Uses** -

Leaves : Powdered leaves have a stimulatory action and are used as snuff to relieve headache and as a fumigatory agent in hysteria.

Bark : The fresh bark is rubbed into a paste with water apply to swelling.

**Economic importance** -

Wood is useful for cabinet work leaves contain tannin.

The sooty molds disease of *E. glaucum* is found in Manadai (West Forest Division of Mandla) in the month of Oct to March.

**Symptoms**:

Amphigenous, Scattered, Colonies amphiphylous, black, superficial, firstly small then
PLATE -13a : Sooty molds of *Elaeodendron glaucum* caused by *Humicola grisea*

PLATE -13b : Close up of the lesion
Fig. 20 - *Humicola grisea* Traaen
A-Mycelium, B-Conidiophores, C-Conidia,
becoming large and coalescing with age to cover the leaf surface. Some places over loaded with black powdery masses.

**Causal organism:**

Lesions amphigenous, small to large covering the whole leaf surface, colonies amphiphylous cottony blackish, mycelium of hyphae superficial, branched, composed of a network of laterally branched, septed, hyphopodia absent; Conidiophores micronematous or semimacronematous, unbranched or irregularly branched, colourless to pale golden brown, smooth; conidiogenous cell monoblastic, integrated, terminal, cylindrical, doliiform, pyriform, or infundibuliform; conidia, solitary, dry, acrogenous. Simple, typically spherical occasionally obovoid, pale to mid golden brown, thick walled usually smooth, O-septate. Codidia 12-17mm in dia; Humicola also has a phialidic state, the phialides being discrete, subulate, colourless, smooth, phialoconidium cate nate or in slimy heads, very small colourless, smooth, O-septate.

On living leaf of *Eleodendron glacum* (celastraceae) an 1997; manadai (W. F. D. Mandla); M.P., India; leg. R. Agrawal; SNVAR. 116 isotype HCIO 42732 holotype.

On the basis of detailed morphological characteristics. It was found to be close to *Humicola grisea*
Rust of *Emblia officinalis* Gaertn.

(Plate No. 14a,b  Fig. 21)

*Emblia officinalis* (Euphorbaceae) is a tree. trees up to 7M high with greyish spreading branches, exfoliating. Leaves small, pinnately arranged, linear, 7-15 mm long. Flowers small, unisexual, greenish white, densely fascicled. It is commonly found in miscellaneous forest of this region.

It is rightly said for giving the medicinal importance of Amala in the Book of Ayurveda Nighantu -

हरीतकीलम्ब धात्रीकलम किन्तु विशेषत: ।
एकपिल्लाप्पौष्पक परे वृष्ण्य दम्याभम्।

The Medicinal & Economic importance are following -

**Medicinal Uses** -

**Fruit**: Headache, Antiemetic, Bronchitis, Constipation, Cooling, Diabetes, Diuretic, Eye Complaints, Fever, Indigestion, Purgative, Revive test, Stomach complaints, Thirst,

**Bark**: Burns, Stomach Complaints.

**Leaf**: Cold, Diabetes, Scorpion bite, Wounds

(Jain 1991)
Economic Importance -

Fruit eaten raw or cooked. Fruit used in hair dyes, dried ones are detergent and used for shampooing hair, seeds yield a fixed oil, fruit, bark and leaves are rich in tannin, wood used for agricultural implements, poles and inferior quality furniture (Ambasta 1986).

The Rust Disease of *Embelica officinalis* is found in Niwas (West Forest Division Mandla), Subharia (East Forest Division Mandla) in the month of Nov to February.

Symptoms:

Rust pustules are globose to sub globe, dark pink to red; clearly visible in upper surface of leaves, uredia, orange, amphiginous solitary or arranged in groups scattered all over the leaf surface.

Causal Organism:

Uredospores light brown ellipsoid, oblong, echinulate with short pines, apex rounded to some what acute, paraphyses abundant, light brown,

Telia chest nut brown amphiginous solitary or in groups, sub epidermal, erumpent partly covered by ruptured, epidermis, teliospore head, brown to yellow brown, sub globose to oval to irregular, appendages hyaline, thickwalled, simple, capitate.
PLATE -14a : Rust of *Embelica officinalis* caused by *Ravenalia emblicae*

PLATE -14b : Close up of the lesion
Fig. 21 - Uredospore of Ravenalia emblica
On living leaf of *Embelica officinalis* (Euphorbiaceae); Dec 99; Niwas (West Forest Division Mandla), Subharia (East Forest Division Mandla) M.P., India; leg. R. Agrawal, SNVAR 278 isotype.

On the basis of detailed morphological characteristics it was found to be close to *Ravenalia emblica* (Syd). *R. emblica* Syd. has been earlier reported on the leaves of *Phyllanthus emblica* from Dehradun (U. P.) Nagpur M. S. by Butler & Bisby (1913), from Belgaum, Karnataka by Butler & Sydow. (1907), by Parndekar 1964 from Kolhapur M. S. by Joshi (1958) from Ajmer Rajasthan, by Patil (1966) from Mahableshwar (M. S.), by Mishra *et. al.* (1976) from Jabalpur (M. P.), by Jain *et. al.* (1966) from Gwalior & Indore., by Pavgi & Singh (1969) from varanasi U. P., by Tyagi & Prasad 1972 from Rajasthan.

It is firstly reported from the forest of Mandla region.
Leaf spot of *Gardenia resiniformis* Roth.

(Plate No. 15a, b  Fig. 22)

*Gardenia resiniformis* is a member of family Rubiaceae. It is shrubs or trees, 1.5 – 3.0 m high, stems smooth with whitish blotches resinous. Leaves 6-10 x 2.5 – 7.5 cm, flowers fragrant, white. It is found in miscellaneous forests of Mandla region and along roadsides.

The plant yields the gum of good quality. Wood is used for fuel.

Leaf spot disease of *Gardenia resiniformis* is found in Bhanpur (W. F. D. Mandla) in the month of Oct to March.

**Symptoms:**

Infection spots are amphigenous, circular to irregular with concentric rings coalescing with age covers the maximum portion of leaf, spots are orangish in colour with dark orange zonation. Fungal mycelium has also been seen clearly on the infectious spots.

**Causal organism:**

Conidiomata pycnidial, semi-immersed, subglobose, single to group 2-5; nical, thick walled, ostidate, ostiole slight papilate, with the cells on the outer
PLATE -15a : Leaf spot of *Gardenia resiniformis* caused by *Phyllosticta sp.*

PLATE -15b : Close up of the lesion
Fig. 22 - *Phyllosticta* sp. Pers. ex. Desm.
A-T.S. of Conidiomata, B-Conidia
layer thick walled and dark brown of textura angular is and the cells of the inner layer thin walled, hyaline to sub-hyaline, 95-115μm. in dia.; Conidiogenous cells arise directly from the pycnidial wall, holoblastic, determinate, discrete, hyaline, sometimes rarely integrated, cylindrical to doliiform, upto 9 x 3.5 μm; Conidia oval subhyaline, smooth, thin walled, one celled, ellipsoidal with an abtuse apex and usually truncate base, enveloped in a thin mucilaginous sheath 16-20 x 10 – 12 μm.

On living leaf of *Gardenia resiniformis* (Rubiaceae.) ; Bhanpur (W. F. D. Mandla) M. P. , India ; March 1997 ; leg. R. Agrawal ; SNVAR 165 Isotype.

On the basis of detailed morphological characteristic it was found to be close to *Phyllosticta sp.* Pers. ex Desm. In India this genus is represented by more than fifty species (Moore, 1959 ; Bilgrami *et al.*, 1979, 1981; Sarbhoy *et al.*, 1977, 81: Gupta Madaan, 1982; Shreemali, 1983, 1984 ; Kamal and Singh, 1979a,b Kamal *et al.*, 1982a,b). But there is no record of this fungi in *G. resiniformis*. Therefore, it is new host record for India.
Tar spot of *Lagerstroemia parviflora* Roxb.

(Plate No. 16a,b Fig. 23)

The description of Plant has been given in leaf spot of *L. parviflora*.

The Tar Spot disease of *Lagerstroemia parviflora* is found in Ghugri, Jhalpani, Bhanpur (East Forest Division, Mandla) and Manadai, Subharia (West Forest Division of Mandla) in the month of Sep. to April.

**Symptoms:**

The yellow spot appears over the lamina as pin head size. Gradually the spot increases in due course having a thick blackish mass and leading to tar spot disease. Several spots are observed over the lamina. At the advanced stage, the dark tar spots are visible over the lamina which may seen from a distance. The disease may seen upto leaf fall.

**Causal organism:**

Mycelium immersed branched, septate, hyaline to pale brown; Conidomata immersed, subepidermal, black, effuse, confluent, often extensive, multiocular, locules separated by thick coloumns of vertically elongated dark brown to black pseudoparenchyma; upper wall 1-2 cells thick, consisting of dark brown to black dead tissue which is closely appressed to the upper epidermis, itself
PLATE -16a: Tar spot of *Lagerstroemia parviflora* caused by *Rhytisma lagerstroemia*

PLATE -16b: Close up of the lesion
Fig. 23 - *Rhytisma lagerstroemia* (Rebenth)
A-Detail of conidiomatal walls in relation to substrate tissues, B-Conidiophore and developing, C-Conidia
packed with brown pseudoparenchyma and hyphae; lower wall consisting of a layer of subepidermal cells loosely packed with pale brown pseudoparenchyma (periodically with a few dark brown to black cells interspersed) from which conidiogenous cells arise. Ostiole absent, dehiscence by irregular fissures in the upper wall; Conidiophores hyaline, septate at the base and above tapered to the apex, flexuous. Branched immediately below transverse septa, formed from the base of the locules long upto 25 μm x 2 M wide at the base Conidiogenous cells holoblastic, sympodial or synchronous, indeterminate, intergrated, filiform, hyaline, smooth, loci indistinct; Conidia hyaline, aseptate, smooth, thin walled straight, apex obtuse, base ± acute, ellipsoid, minutely guttulate. 3.4 x 1-1.5 M.

On living leaf of *lagertromia parviflora* Roxb. (Lytheraceae); Nov. 98; Ghugri, Jhalpani, Bhanpur (East Forest Division, Mandla) Manadai, Subharia (West Forest Division of Mandla) M. P. India; leg. R.Agrawal, SNVAR 178 isotype.

*Rhytisma lagerstroemia* (Rabebtg) has earlier been reported on upper surface of leaves of *Lagerstromia sp.* by Sydow (1914) from Central India & Belgam, Karnataka and Rangaswami *et al.* (1970) from Dandeli, Mysore, Karnataka, on *L. lanceolata* bin upper surface of leaves of *Lagerstroemia sp.*, central India and Belgam,
Leaf spot of *Lagerstromia parviflora* Roxb.

(Plate No. 17 Fig. 24)

*Lagerstromia parviflora* (Lytheraceae) is a shrub or small tree with greyish branches. Leaves elliptic – Oblong, flowers very small, white in Panicles calyx not ribbed; Petals white with ca 3mm. long rotundate cruised blade and ca 2 mm long claw. Plants are common in mixed forest of Mandla & in Dindori road.

**Economic importance :**

The leaves & bark used in tanning. The bark also yields a fibre and a sweet, edible gum. Wood called **Ban Teak** is very hard & used commercially for the manufacture of Ploughs boats etc. And also for Charcoal of very good quality.

The leaf spot disease of *Lagerstromia parviflora* is found in Ghugri, Jhalpani, Bhanpur (East Forest of Mandla) in the month of Sep. to March.

**Symptoms :**

Infection spots are amphigenous, small to large, circular to irregular, coalescing with age, due to infection leaf margin curl down, marginal portion of leaf much affected than middle vein region. Infection spots are brown with pale golden boundry.
PLATE -17 : Leaf spot of *Lagerstroemia parviflora* caused by *Pestalopsis guepine*
Fig. 24 - *Pestalotiopsis guepinii* (Desm.)
A-Vertical section of conidioma, B-Conidia
Causal organism:

Mycellium immersed, branched, septate hyaline to pale brown; Conidiomata upto 200μdia acervular to subepidermal, separate or confluent, formed of brown, thin walled texture angularis. Dehiscence irregular; Conidiophores 10-15 x 1-3, with 1-2 proliferations, hyaline, branched and septate at the base and above, cylindrical, formed from the upper cells of the Pseudoparenchyma; Conidiogenous cell holoblastic, annellidic, indeterminate, integrated, cylindrical, hyaline, smooth with several percurrent proliferations; Conidia 21-27 x 6.5 –8.5 μ. smooth, median cells concolourous, 15-19μ long, fusiform, fusiform, straight or slightly curved, 4 euseptate, basal cell hyaline, truncate, with an endogenous, cellular, simple or rarely branched appendage, basal appendage 4-12μ long, apical cell conic, hyaline, with 2 or more apical branched, appical appendage 2-5, mostly 3, unbranched, apices obtuse, 16-33μ long median cells brown, sometimes versicoloured, thicker walled, smooth.

On living leaf of Lagerstromia parviflora Roxb. (Lytheraceae); Nov. 98; Ghugri, Jhalpani, Bhanpur (West forest division, Mandla) M. P. India; leg R. Agrawal, SNVAR 180 isotype.

On the basis of detailed morphological characteristics it was found to be close to Pestalotiopsis
*P. quepinii* (Desm.) Stey. *P. quepinii* (Desm.) stey, has been earlier reported on several host namely on living leaves of *Hevea sp.* by Hasija (1962) from Jabalpur, on leaves of *Eucalyptus sp.* by Agrawal & Sarbhoy (1984) from Dharamshala, H. P. and on leaves of the same host *Lagerstromia parviflora* by Ramkrishnan & Subramanian (1952) From Dharwar, Karnataka, It is firstly reported on *L. parviflora* from (Mandla) M. P.
Rust of *Pongamia pinnata* (L) Pierre

(Plate No. 18 Fig. 25)

*Pongamia pinnata* is a member of family papilionaceae is a medium sized tree with spreading branches forming dense canopy, leaves 7-15 cm. long; leaflets 5-7, ovate-oblong, cuspidate, 5-10 cm long. Racemes axillary, shorter than the leaves. Flowers pinkish, pods woody, 1-seeded. Commonly it planted under the social forestry programme on the road sides.

The plant have medicinal & Economic values these are Following -

**Medicinal Uses** -

Seeds are effective in treating broanchitis & whooping cough. A Paste of the seed is externally applied over rheumatic joints, skin diseases and leprous sores. The seeds yield yellowish brown bitter oil which has antiseptic, anti parasitic and cleansing properties various skin diseases such as scabies, itch, herpes, ulcer and eczema can be effectively cured by the oil.

**Economic importance** -

Seed oil used for illumination & soap making.

The Rust disease of *Pongamia pinnata* is found in Jhalpani (East Forest Division, Mandla) in the month of Dec to March.
PLATE -18: Rust of *Pongamia pinnata* caused by *Ravenalia hobsoni*
Fig.25 - *Uredospore of Ravenalia hobsoni* (Cooks)
Symptoms:

Rust pustules are dark brown to reddish in colour, scattered all over the leaf surface of lower side, pustules are very minute like as pin head, premature leaf fall takes place due to severity of disease.

Causal Organism:

The causal organism identified as *Ravenelia hobsoni* Cooks.

On living leaf of *Pongamia pinnata* (Papiionaceae); Dec 98; Jhalpani (East Forest division of Mandla) M.P., India; leg. R.Agrawal SNVAR 226 Isotype.

On the basis of detailed morphological charactersites it was found to be close to *Ravenelia hobsoni* Cooks. *R. hobsoni* has been earlier reported on the leaves of *Pongamia glabra* from shivpuri (M. P.), by Jain *et al* (1966) from Varanasi (U. P.), by Pavgi & Singh (1969), from Rajasthan, by Tyagi & Prasad (1972) and from Poona & Khandala (M. S.) by Patil (1965).

So far there is no record of *R. hobsoni* on *Ponagamia pinnata*. Therefore it is new host record for India.
Sooty molds of *Randia dumentorum* L.

(Plate No. 19a,b Fig. 26)

*Randia dumentorum* is a member of a family Rubiaceae. It is shrub, stem woody, leaves opposite, simple, entire. Inflorescence cymose, flower dimorphic.

Importance of this Plant to yield edible fruits and wood used as fuel.

Sooty molds of *Randia dumentorum* is found in Bhanpur (East Forest Division of Mandla) in the month of Oct. to March.

**Symptoms:**

Epiphyllous. colonies scattered, black, superficial, firstly small then becoming large and coalescing with age to cover the leaf surface. Some places over loaded with black powdery masses.

**Causal organism:**

Colonies epiphyllous, olivaceous brown to dark blackish brown. Hyphae 3-5.5μ thick; Hyphopodia alternate or unilateral, oblong rounded at the apex, subglobose or clavate, dark brown, 4-8 x 3-6μ; Conidiophores 0-1 septate 8-20 x 4-6μ, pale to mid olivaceous brown, dark blackish brown or black at the apex; Conidia straight or curved, obclavate, rostrate, dark
PLATE -19a: Sooty molds of *Randia dumentorum* caused by *Tretospora sp.*

PLATE -19b: Close up of the lesion
Fig. 26 - *Tretospora* sp.
A-External hyphae, B-Hyphopodia
C-Conidia
brown or reddish brown, paler towards the apex, often verruculose, 3-6 pseudoseptate 62-125μ long, 11-13μ thick in broadest part, 3-5μ wide at the base, 1.5-2.5μ at the apex, very dark at the hilum.

On living leaf of Randia dumentorum L. (Rubiaceae); Nov. 98; Bhanpur (West Forest Division Mandla) M.P., India; leg R. Agrawal; SNVAR 169 isotype.

On the basis of detailed morphological characteristics it is found to be close to Tretospora sp. The species of present fungi could not be identified with all available literature and therefore appeared to be new fungal species. This will however need further detailed investigation.
Leaf spot of *Smilax zeylanica* L.
(Plate No. 20a,b Fig. 27)

*Smilax zeylanica* is a member of family Smilaceae; it is stout climbers with a pair of stipular tendrils from the tip of leaf sheaths, branches usually prickly. Leaves elliptic oblong or cuborbicular, 5-7 costate, reticulately veined. Flowers ca 6mm long, greyish white. Plants are found in mixed forest of Mandla.

Twigs use for cleaning teeth that's why its common name is 'Ramdatoon'.

The leaf spot disease of *smilax zeylanica* has found in Mohagaon (East Forest Division of Mandla), Manadai (West Forest Division of Mandla) in the month of Jan to March.

**Symptoms:**

Infection spots amphigenous, firstly round and then become irregular, small to large, pale brown, later effuse. Pots have been seen all over the surface.

**Causal organism:**

Infection spots amphigenous, firstly irregular, small pale brown, later effuse, colonies hypophyllens, _cellium of hyphae mostly superlcial subhyaline, septate, branched, smooth walled; Conidiophores macronematous,
PLATE -20a : Leaf spot of *Smiles zeylanica* caused by *Stenella milacis*

PLATE -20b : Close up of the lesion
Fig. 27 - *Stnella smilacis* Kumar *et al*
A-Stroma, B-Conidiophore C-Conidia
mononematous, arising usually singly, terminally or laterally from the hyphae, erect, straight or slightly flereuous, brown paler at the apex 58 x 163 up to 3.20 μm; Conidiogenous cells polyblastic integrated terminal sympodiel, consciously cicatrized, cylindrical, geniculate near to apex; Conidia simply, solitary sometime in chain, acrogenous, dry smooth, unbranched, usually strainght 0-4 septate (usually) with rounded apex and truncate to conicotruncate base, subhyaline 9.5 – 20 x 2.5-3 μm.

On living leaves of Smilax zeylanica. L. (Smilacaceae); March 98; Mohagaon (East Forest Division, Mandla), Manadehi (West Forest Division, Mandla ) M. P. India; leg R. Agrawal, SNVAR 118... isotype. HClO-42734 Holotype.

On the basis of detailed morphological characteristics it was found to be close to Stenella smilacis Kumar et, al. S. smilacis is previously reported on Smilex macrophila from Gorakhpur, U. P. by Kumar et. at (1980). But it is first time repoered on Smilex zeylanica so it is new host combination for India.
Leaf spot of *Schrebra swieteniodes* Roxb.

(Plate No. 21a,b Fig. 28)

*Schrebra swieteniodes* (Ascle Pediacae) is a moderate size tree of Miscellaneous forest. Leaves 7-9 foliate; leaf lets ovate flowers white in terminal panicles. Wood is used as timber & fuel.

The leaf disease of *Schrebra swieteniodes* is found in Jhalpani (East division of Mandla) in the month of Dec. to March.

**Symptoms:**

Lessions amphigenous. Spots are silver white in colour, small to medium in size, irregular in shape. Scattered all over the leaf surface. The fungal colonies are very clear on the lesions.

**Causal organism:**

Infection spots amphigenous, small to medium irregular, colonies hypophyllous then become amphiphyllous, effuse, mycelium superficial stroma non; Conidiophores macronematous, mononematous, unbranched or irregularly branched, pale brown to olivaceous brown, smooth, upto 600μ long; Conidiogernous cell polyblastic, intergrated, terminal, sometime becoming intercalary, sympodial, more or less cylindrical but tapered slightly towards the round apex, cicatrizied; scars only slightly
PLATE -21a : Leaf spot of *Schrebra swietinoidis* caused by *Eriocercospora balladynae*

PLATE -21b : Close up of the lesion
Fig. 28 - *Eriocercospora balladynae* (Hansf.)
A-Conidiophores, B-Conidia
thickened and the old one coming to lie flat against the side; Conidia solitary, dry, acropleurogenous, simple, clavate, cylindrical rounded at the apex out conico-truncate at the base, fusiform to obclavate, rather pale olivaceous brown smooth 1-9 septate, 16-135 x 4-12μ.


On the basis of detailed morphological characteristic it was found to be close to *Eriocercospora balladynae* (Deighton). The fungi has been earlier reported from some countries of world it is firstly reported from India.
Leaf spot of *Semicarpus anacardium* L.

(Plate No. 22a,b Fig. 29)

*Semicarpus anacardium* is a member of family Anacardiaceae, its Habit is shrub or tree. Leaves Generally clustered at the tips of branches, obovate-Oblong, 20-45 cm long, cuneate, lower surface grey and Papilose between the strong hairy nerves. Flowers 6 mm across, greenish yellow, in large dense panicles. Plants are found in miscellaneous forest of Mandla.

Various parts of this has Plant has used to cure many diseases and has Economic importance.

**Medicinal Uses:**

Root : Antifertility, Importance, Wounds.

Leaf : Leprosy.

Receptacle : Burns.


Seed Oil : Ulcer, Simla disease, Epilepsy.

Fruit Oil : Sprain.

Bark : Gonorrhea.
Economic importance:


The leaf spot disease of Semicarpus anacardium is very severe in Mandla, Jhalpani (East Forest Division of Mandla) in the month of Dec. to March.

Symptoms:

Infection spots are amphigenous, infection start as a small brown spot gradually spots increases in size and coalesing together. On the severity of disease the maximum portion of leaf surface covers by infections spots. Spots are irregular grayish brown in colour with dark brown boundary.

Causal organism:

Mycelium immersed, branched, septate, hyaline or pale brown; Conidiomata pycnidial, globose, separate or more frequently aggregated, dark brown, immersed, unilocular + thick walled, walk of brown thick walled textura angularis; Ostiole central, circular, papillate upto 60 μ dia; Conidiophores hyaline, smooth, 1-3 septate, tapered at the apex, branched only at the base, formed from the inner cells of the pycnidial wall 3-12 x 2-3 μ
PLATE -22a: Leaf spot of *Semicarpus anacardium* caused by *Astromella sp.*

PLATE -22b: Close up of the lesion
Fig. 29 - *Asteromella sp.* Pass & Thum
A-Pycnidia, B-Conidia
Conidiogenous cells enteroblastic, phialidic, integrated or less often discrete, deteminate, hyaline, apertures apical of lateral of short branches produced immediately below transverse septa, collarette and channel minute; Conidia hyaline, aseptate, thin-walled, eguttulate, cylindrical to oval 2-2.5 × 1 μ.


The Genus *Asteromella* Pass & Thum has been earlier reported on the living leaves of *Butea monosperma* Kuntze by Singh (1978) from Balaghat (M. P.), on leaves of *Citrus maxima* by Sharma (1976) from Jabalpur (M. P.). on living leaves of *Quercus griffithii* by Gupta & Gupta (1985) from Gorakhpur, U. P. & on *Gmelina arborea* by Kanaujia & Kishore (1981) from Faizabad (U. P.). It is firstly reported on *Semicarpus anacardium* from Mandla (M. P.) India.
Pseudocercospora terminaliae On Terminalia belerica
Gaertn Roxb. (Plate No. 23 Fig. 30)

Terminalia belerica (Combretaceae) is a large deciduous tree with dark gray bark and yellowish blaze. Leaves usually clustered at the tips of branchlets, elliptic-obovate, 7-20 cm long, obtuse or cuspidate, spike salitary, auxiliary or Extra-axillary.

This plant have Medicinal importance as well as Economic importance-

Medicinal Uses:

Bark: Cold, fever.


Economic Importance:

Fruit edible. Wood used for rough shafts, carts and rafters, kernels yield an inedible oil, used for soap manufacture (Ambasta 1986).

The leaf spot disease of Terminalia belerica is severe in Bhanpur (East Forest, Mandla), Subharia (West Forest, Mandla) in the month of Jan. to March.
PLATE -23 : *Pseudocercospora terminalia* on *Terminalia bellerica*
Fig. 30 - *Pseudocercospora terminaliae* (Syd.) Ellis
A-Stroma, B-Conidiophores, C-Conidia
Symptoms:

Infection starts in the form of small black patches spread rapidly merged to gather and cover the hole leaf surface, colonies are hypophyllous blackish brown in colour having velvety appearances.

Causal organism:

Colonies mostly hypophyllous, black, Mycellium immersed, stroma present but not well developed; Conidiophores macronematous, mononematous, unbranched, flexuous, often narrow, pale to mid brown, smooth, upto 2-4 septate, 12 x 6-10µm; Conidiogenous cell integrated, terminal, polyblastic, sympodial; conidia solitary, dry, acropleurogenous, simple, mostly obclavate, Conicotuncate base, dark brown, thick walled, smooth, upto 12 septate, 39-115 x 7.5-9.8µm.

On living leaves of Terminalia belerica Gaertn Roxb. (Combretaceae); Feb. 98; Bhanpur (West Forest of Mandla), Subharia (East Forest of Mandla)M. P. India; leg R. Agrawal SNVAR 302 isotype.

On the basis of detailed Morphological characteristic it was found to be closed to Pseudocercospora terminaliae. P. terminaliae was earlier reported on other Terminalia sp. (Ellis, 1976) from India but not reported on T. belerica which constitute a new host record for India.
Leaf spot of *Terminalia chebula* Retz.

(Plate No. 24a,b Fig. 31)

*Terminalia chebula* is a member of Family Combretaceae. It is a large, much branched, deciduous tree. Leaves ovate, elliptic, oblong, acute. Flowers whitish, strong scented in terminal spikes. The bark of this tree is brown cracking into oblong chips.

**Medicinal Uses**


**Economic importance**

Dried fruit is an important tanning material, Roots, bark and wood also contain tannin. Kernels yield fatty oil. Tree yields a gum. (Ambasta 1986).
PLATE -24a : Leaf spot of *Terminalia chebula* caused by *Pseudocercospora terminaliae*

PLATE -24b : Close up of the lesion
Fig. 31 - *Pseudocercospora terminaliae* (Syd.) Ellis
A-Stroma, B-Conidiophores, C-Conidia
The leaf spot disease of *Terminalia chebula* is severe in Ghugri (East Forest of Mandla) in the month of Sep. to March.

**Symptoms:**

Infection spots are amphigenous, firstly small brown spots appeared than coales together, in maturity light brown spots surrounded by drak brown border infection spot are irregular. Due to disease marginal portion of leaf is much effected than mid rib region. Sometimes fungal colonies has been also seen at the infection spot of upper surface of leaf.

**Causal organism:**

Colonies mostly hypophyllous, black mycelium immersed; Stroma present but not well developed; Conidiophores macronematous, mononematous, unbrached, flexuous, often narrow, pale to mid brown, smooth, up to 3-4 septate, 10 x 5.5 – 9.3 μm; Conidiogeneus cell integrated, terminal, polyblastic, sympodial; Conidia solitary, dry, acropleurogenous, Simple mostly obclavate, conicotruncate base, dark brown, thick walled, smooth, upto 10 septate, 35-110 x 7.2 – 9.2 μm.

On living leaf of *Terminalia chebula* Retz. (Combretaceae); Nov 98; Ghaugri (East Forest of Mandla) MP, India; leg. R. Agrawal, SNVAR 142 isotype.
*Pseudocercospora terminaliae* was earlier reported on other *Terminalia sp.* (Ellis, 1976) from India but not reported on *T. chebula*. Which constitute a new host record for India.
Powdery Mildew of *Tectona grandis* L. F.
(Plate No. 25 Fig. 32)

*Tectona grandis* (Verbinaceae.) is a large, deciduous tree. Leaves opposite, large, elliptic or obivate, entire, cuneate at base. Flowers numerous, only a few fertile, in large di or tri- chotomously branched, terminal tomentose cymose panicles.

The plant gives very good type of timber wood that's why called the *Green gold of the forest*, along with the economic importance it has numerous medicinal uses as follows-

**Medicinal Uses:**

Wood : headache, Biliousness, Eczema, Ring worm, Eye diseases, Swell.


**Economic importance:**

Wood used for flooring, planking, panelling and staircases and other constructional work. Timbers for furniture, and railway carriages. Leaves contain tannin and a dye, also used for that ching (Ambasta 1986).
The powdery mildew of *Tectona grandis* has been seen in Prempur, Jugthar, Badgiri (West Forest Division Mandla) in the month of October to May, June.

**Symptoms:**

The symptoms appears on the upper surface of leaves as small white patches. Fungus grows very rapidly and the entire leaf surface within very short period. During the later stage of infection, numerous small pin head like, black, cleistothecia are formed. Due to formation of cleistothecia white powdery apparance become grayish in colour.

**Causal organism:**

*Anamorph:* Pseudoidium-type; Myceliu on leaves, epigenous, effuse confluent covering entire surface of leaves rarely in patches, white, thin to moderately thick, evanescent to persistent; Appressoria, indistinct conidiophores erect, straight, stout, 50-80 long; Foot-cells, erect, cylindric, straight 18-30 x 3-12 μm, followed by 1-2 shorter cells or one longer and two shorter cells; Conidia formed singly, ellipsoid-cylindrical 20-36 x 6-7 μm; germ tube not observed.

*Teleomorph:* Ascomata cleistothecial, epigenous, globose to subglobose, subgregarious to scattered, dark brown 86-170 μm in diam; peridium multilayered; Wall cells
PLATE -25 : Powdery mildew of *Tectona grandis* caused by *Uncinula tectonae*
Fig. 32 - *Uncinula tectonae* Salam
A-Conidiophore, B-Conidia, C-Ascomata
D-Ascus, E-Ascospore
irregularly polygonal, 6-17 wide; Appendages numerous, simple aseptate, hyaline to olivaceous brown, smooth, equitorially arising from the ascomata, apex uncinate when mature, stout, short, 1-2 times longer than the diam. of ascomata.

On the living leaves of *Tectona grandis* (Verbinaceae); Feb., 99; Prempur, Jugthar, Badgiri (East Forest Division Mandla) M. P.; India; leg R. Agrawal SNVAR 346 isotype.

On the basis of detailed morphological characteristics it was found to be close to *U. tectone* Salam.

*Uncinula tectonae* Salam has been earlier reported on the leaves of *T. grandis* by Agrawal *et al* (1959) from Jabalpur (M.P.) & from Dohad, Nagpur (M.S.) by Bakshi *et al* 1972 from all over India, on *Cordia macleodii* by Butler *et al* (1960) & Salmon (1907) from Jabalpur, M.P. & by Rangaswami *et al* (1970) from kemmangundi, Karnataka.
Sooty molds of *Vitex negundo* L.
(Plate No. 27a,b Fig. 33)

*Vitex negundo* (Verbinaceae) is a large shrub or small tree. Branches white, quadrangular. Leaves lanceolate, densely grey tomentose. Flowers small, white, bluish purple, arranged in a large terminal panicle.

The medicinal properties of Nirgundi (local name of local name of *Vitex negundo*) have been narrated in Ayurveda in the following sutra-

तिलं तुस्मति मातीर एकत्रिक तोल्लोपथः तत्सादृश निगुणक्षी

It means that what protects from diseases is called Nirgundi.

*Vitex negundo* have so many medicinal properties is used by villagers as a medicine along with it have Economic importance-

**Medicinal Uses:**

**Root:** Expectorant, Rheumatism, Indigestion, Dysentery, Piles.

**Whole Plant:** Eye diseases, consumption, Inflammations, Leucoderma, Enlargement of the spleen, Bronchitis, Asthma, Biliousness.
Leaf: Blisters, Boil, Bodyache, Cold, colic, cough, Diarrhoea, Dropsy, Fever Gum trouble, Headache, Itch, Paralysis, Piles, Reduce Sex desire, Rheumatism, Steriliser, Swell, Testes disease, Toothache, ulcers, Vermifuge, wounds.

Stem: Bone fracture.

Flower: Diarrhoea, Dysentery, Eczema, Pneumonia, Syphilis.


Economic Importance:


The leaf spot disease of *Vitex nugundo* is found in Ghugri (East Forest Division, Mandla) in the month of Oct. to March.

Symptoms:

Colonies scattered, epiphyllous, black, superficial, firstly small than becoming large and coalescing with age to cover the leaf surface. Some places over loaded with black Powdery masses.
PLATE -26a : Sooty molds *Vitex nugundo* caused by *Sarcinella jabalpurensis*

PLATE -26b : Close up of the lesion
Fig. 33 - *Sarcinella jabalpurensis* (Rajak & Soni)
A-External hyphae, B-Conidiophores,
C-Conidia, D-Hyphopodia
**Causal organism:**

Colonies effuse, Pale to dark blackish brown; Mycelium superficial, composed of a network of thick branched and anastomosing hyphae; Stroma none; Hyphopodia present often hemispherical, 8-10 x 5-7 μ; Conidiophores micromematous or semi-macromematous, integrated, terminal or intercalary, determinate, cylindrical; Conidia solitary, dry acrogenous or pleurogenous, simple, subspherical or irregularly saciniform. Dark brown or reddish brown, smooth, muriform, septa sometimeserciately arranged constricted at the septa, 18-25 x 14-22μ.

On living leaf of *Vitex negundo* L. (Verbinaceae); Nov. 98; Ghugri (W. F.D. Mandla) M.P., India: leg R. Agrawal; SNVAR 249 isotype.

On the basis of detailed morphological characteristics it was found to be close to *Sarcinella jabalpurensis* Rajak & Soni. *S. jabapurensis* has been earlier reported on living leaves of *V. negundo* by Rajak & Soni (1981) from Jabalpur (M. P.).
Leaf spot of *Wrightia tinctoria* R. Br. Spore

(Plate No. 27a,b Fig. 34)

*Wrightia tinctoria* is a member of a family Apocynaceae. It is a medium-sized tree. The stem is woody, leaves simple, opposite.

So many uses of this plant are as under -

Leaves are the source of a blue dye. Indigo wood is used for match boxes, splints, and in lay work, the seeds possess anthelmintic properties & the fruit juice is used for coagulating milk.

The leaf spot disease of *Wrightia tinctoria* is found in Jhalpani (East Forest Division, Mandla) in the month of Sep. to March.

**Symptoms:**

Lessions amphigenous irregular, scattered all over the surface, spots merged together and cover the hole leaf, tabacco brown to dark brown in colour, due of disease premature leaf fall takes place.

**Causal organism:**

Lessions amphigenous, Predominantly epigenous, circular to irregular, distributed all over leaf surface, whitish black colonies amphiphyllus, effuse,
PLATE -27a : Leaf spot of *Wrightia tinctoria* caused by *Pseudocercospora wrightiiicola*

PLATE -27b : Close up of the lesion
Fig. 34 - *Pseudocercospora wrighticola*

A - Stroma with Conidiophores, B - Conidia
represented by very fine dots, white, mycellium of hyphae immersed, septate, narrow, branched stromata well developed immersed, sometimes superficial, pseudoparenchymatous, light brown, up to 75 μm in dia; Conidiophores caespitose, small (in loose) to large (in dense) fascicles, smooth walled, septate up to 1-10 transversely septate, acute to subacute apex, subtruncate to obconicotruncate base with thickened hila, 12-72 x 2-5.5 μm.

On living leaf of *Wrightia tinctoria* R. Br. (Apocynaceae); Nov. 97; Jhalpani) East Forest Division, Mandla), M. P., India; leg R. Agrawal; SNVAR 120 isotype HCIO 42735 Holotype.

On the basis of detailed morphological characteristics it was found to be close to *Pseudocercospora wrightiiicola*. 
Powdery mildew of *Xanthium strumarium* Roxb.

(Plate No. 28 Fig. 35)

*Xanthium strumarium* (Solanaceae) is a erect rigid annual herb, much branched hairy surface. Leaves alternate, triangular 3 lobed. Head monoecious. Fruiting involucre clothed with hooked prickles.

The plant have medicinal & economic values. These are following –

**Medicinal Uses** -

Whole plant : Leucoderma, Biliousness, Epilepsy.
              Fever Leucorrhoea.

Root : Cancer, Ulcer, Stramous diseases.
       Boils.

Seed oil : Herpes, Erysipelas, Rheumatism.

Leaves : Scrofula, Herpes, Sore throat,
         Footach.

Seed : Headache.


**Economic importance** -

Young floral tops and leaves immediately below are boiled and eaten as pot-herb. Seeds yield a
PLATE -28: Powdery mildew of *Xanthium Strumarium* caused by *Oidium xanthi*
Fig.35 - *Oidium xanthi* Bhatnagar & Kothari
A-Conidiophores, B-Conidia
semidrying oil. It is edible and used for production of lecithin, soft and hard soaps & sulphonated oils also employed in paints. Cake may be used as fertilizer (Ambasta 1986).

The powdery milbew of *X. strumarium* found in Amatola, Jhalpani, Khaire (E & W Forest Division Mandla) in the month of Dec to March.

**Symptoms:**

Symptoms appear in form of white powdery patches in the upper surface of leaf. In very short period the powdery patches covers the whole leaf surface.

**Causal organism:**

Mycelium on leaves amphibogenous, white cottony, effuse coalesced, persistent: hyphae, superficial, branched, 4-6 μm wide. Appressoria nipple-shaped, elongated; Conidiophores erect, straight 50-90 x 5-11 μm, 4-6 celled : foot-cells cylindric, (15-) 22-32 x 5-9μm, followed by 1-4 unequal cells. Conidia formed singly, cylindric-doliform 28-32 x 10-16μm : germ tube not observed.

On living leaves of *Xanthium Strumarium* (Solanaceae); Jan 97; Amatola, Jhalphani, Khaire (E. & W. Forest Division Mandla) M. P., India; leg. R. Agrawal; SNVAR 132 isotype.
On the basis of Morphological characteristics it was found to be closed to *Oidium xanthi*. The causal organism was earlier recorded by Bhatnagar Kothari. On the same host from Udaipur, Rajasthan and Kolhapur, (M.S.).

Sharma (1981) noticed the occurrence of *Sphaerotheca pannosa* (wallr, Fr.) Lev. and *S. fuliginea* (Schlecht. : Fr.) poll. From Jammu. However, the present powdery mildew differs from these two powdery mildews in having solitary conidia on the conidiophores. The detailed description tallies well with the description of *O. xanthami* and hence placed accordingly. Therefore it is new host record for M.P.
Leaf spot of *Ziziphus zuzuba* (Lam)

(Plate No. 29a,b Fig. 36)

The description and uses of this plant given in sooty molds of *Ziziphus zuzuba*.

The leaf spot disease of *Ziziphus zuzuba* is found in manadai & Ghugri (East & West Forest Division of Mandla) in the month of Oct to March.

**Symptoms:**

Firstly minute brown spots appeared than coalesced to form larger patches. Spotshaving 1-2 concentric rings. Light brown to dark brown in colour and become grayish with age. Colonies more clear in lower surface then on upper surface. Some times tip blight also noticed.

**Causal organism:**

Colonies hypophyllous, orbicular to sub-orbicular with scattered synnemata; Mycelium partly superficial, partly immersed; Stroma present, brown, setae and hyphopodia absent; Conidiophores micronematous, synnematous; synnemata upto 300 µm. high, with the individual treads rather loosely held together and splaying aut, mostly, unbranched, flexuous, geniculate toward the apex, septate, mid pale brown, smooth, individual that 3.9 – 5.8 µm. thick; Conidiogenous, cells integrated, terminal
PLATE -29a : Leaf spot of *Ziziphus zizuca* caused by *Tandonella ziziphii*

PLATE -29b : Close up of the lesion
Fig. 36 - *Tandonella zizipi* Prasad & Verma
A-Conidiophores, B-Conidia
some times becoming intercalary, polyblastic, sympodial, cicatrizied; Conidia acroploeryogenous, dry, formed in simple or branched chains, cylindrical to fusiform, brown, smooth, septate with scars, at one or both ends; Conidia mostly 19-40 x 4-7.5μm.

On the living leaves of *Ziziphus zuzuba* Lam (Rhamnaceae) Ghugri, Bhanpur, (West. Forest. Division. Mandla) M. P., India; Feb 1997; leg. R. Agrawal; SNVAR. 145 isotype,

By the review of literature & study of morphological characteristics it found that causal organism is close to *Tandonella ziziphi*. Prasad, S.S. & Verma. RAB. *T. zuzuba* has been earlier reported on the living leaves of *Z. zuzuba* by prasad & verma (1970) from Muzapherpur Bihar, Borborua (1990), again recorded the fungus from Asam on the same host so it is new record of this fungus from Madhya Pradesh.
Sooty molds of *Ziziphus zizula* Lam.

(Plate No. 30 Fig. 37)

*Ziziphus zizula* (Rhamnaceae) is a thorny, tomentose bush, Leaves small, spinous-dentate, densely tomentose beneath, on short petioles. Flowers in short axillary compact cymes, pale yellow.

The medicinal & economic importance of this plant is as follows:

**Medicinal Uses** -

Root : Stomachache, Ulcers, Wounds.

Stem Bark : Diarrhoea

Leaves : Conjunctivitis, Rheumatism, Whooping cough.

Fruit : Stomachache, Digestive (Jain, 1991) having cooling effect and used as anodyne a tonic Josphanda which is used in chest troubles.

Kernels : Sedative used as suporific and to stop vomiting.

Seeds : Diarrhoea.

**Economic importance** -

Fruit edible, Leaves fodder, seeds yield fatty oil, wood for wheels, gun stocks, toys and ternery.
PLATE -30 : Sooty molds of *Ziziphus zuzuba* caused by *Mitteriella ziziphina*
Fig. 37 - *Mitteriella ziziphina* Syd.
A-Mycelium, B-Conidiophores, C-Conidia
The sooty mold of *Ziziphus zizuba* is found in Ghugri (East Forest Division, Mandla) in the month of Nov. to March.

**Symptoms:**

Symptoms appear firstly on the upper surface of leaf in the form of black, velvety, diffused patches, gradually covers the whole leaf surface.

**Casual Organism:**

Colonies, effuse, black, mycelium superficial; hyphae thick, brown, branched and anastomosing to form a networks; stroma non; Hyphopodia present 7-10 μm in dia; Conidiophores 12-25 x 4-8 μm macronematous, mononematous, short, unbranched brown smooth; conidiogenous cell polyblastic, integrated, terminal, sympodial, cylindrical or clavate, cylindrical or conical; truncate at the apex, thin walled, often calloping; conidia 30-40 μm long and 15-20 μm in broadest part, solitary, dry, acropleurogenous, simple broadly ellipsoidal, black and shining by reflected light, 0-4 septate, cells unequally coloured, end cells colourless or pale, intermediate cells dark or very dark brown smooth.

On living leaf of *Ziziphus zizuba* Lam. (Rhamnaceae); Dec 98; Ghugri (East Forest division, Mandla) M.P., India; leg. R. Agrawal, SNVAR...Isotype.
By review of literature & detailed morphological characteristics it was found to be close to *Mitteriella ziziphina* Syd. *M. ziziphina* has been earlier reported on the leaves on *Ziziphus nummularia* by Berkeley (1882) from kapsan, Rajasthan, on leaves on *ziziphus sp.* by Sarbhoy & Agrawal (1975) from New Delhi, On leaves of *Z. xylophyra* by Sahni (1964) from Jabalpur (M. P.), On leaves of *Z. rodundifolia* by sydow & Mitter (1933) from Majhgawan (U. P.) on the *Z. oenoplia* & on the same host *Z. zuzuba* by Tandon (1935) from U. P.

This has not previously been reported from Madhya Pradesh.
Pseudocercospora ziziphicola on Ziziphus zuzuba Lam.

(Plate No. 31a,b Fig. 38)

The detail description & uses of this plant given in sooty molds of Ziziphus zuzuba.

The sooty molds Z. zuzuba is found in Khaire (West Forest Division Mandla) in the month of Oct. to April.

Symptoms:

Infection starts from the lower surface of the leaf in form of greyish black, velvety patches. Firstly patches had been seen in the marginal portion of leaf then coalesing with age to cover the whole leaf surface.

Causal organism:

Colonies hypophyllous, greyish black, velvety superficial, covering the hole leaf surface; stroma present, setae & hyphopodia absent; condiphores macronematous, synnematous or mononematous, caespitos; individual thread, unbranched, flexuous, cylindrical and closely adpressed near the base, pale to mid brown or olivaceous brown, smooth 400μ long, 3-5μ thick; conidiogenous cell integrated, terminal, often monoblastic, later polyblastic, sympodial and denticulate; conidia solitary, dry, acrogenous later acropleurogenous, simple mostly
PLATE -31a : *Pseudocercospora ziziphiola* on *Ziziphus zuzuba*

PLATE -31b : Close up of the lesion
Fig. 38 - *Pseudocercospora ziziphicola*
A-Conidiophores, B-Conidia
obclavate at the base, pale to mid brown, smooth with numerous transverse septa, 20-35 x 6-10μ, 2-2.5μ.

On the living leaf of *Ziziphus zuzuba* Lam. (Rhamnaceae); Jan 98; Khaire (W. F. D. Mandla) SNVAR 121, Isotype HCIO 42736, Holotype.