INTRODUCTION
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In Indian economy oil seeds play a major role. Among the oil seed crops, sesame is one of the important crop grown in all the agricultural seasons in different parts of the country, next to groundnut, rape seed and mustard. Out of the total cultivated area of the world (6.392 mha), India ranks first in area (1.673 mha) but the productivity is very low (322 Kg/ha) as compared to the world (426 Kg/ha) average productivity (FAO Bulletin, 2000). This may be due to cultivation of low yielding varieties and susceptibility of existing cultivators to pest and diseases.

In Andhra Pradesh its cultivation confines to 0.196 mha (ranking 3rd in area) producing about 0.053 mt (ranking 4th in production) and with an average productivity of 290kg/ha which is far below when compared to world average productivity (Statistical Abstract India, 1997). Sesame (Sesamum indicum L.) belongs to family Pedaliaceae and is perhaps the oldest oilseed crop known to man. It is one of the important oil crop cultivated in several parts of India. Regarding polyunsaturated fatty acid (PUFA) composition, the consumption of sesame oil is much advantageous than conventional mustard and rape seed oil (Brar and Ahuja, 1979).

Sesame seeds are used as whole or processed into oil and meal. Whole seeds are often decorticated and used in the preparation of sweets (candies and halva) and in baking. The seeds are also eaten whole after they are roasted. In Africa, sesame is used to make porridge, soup and confectionery. A sesame paste (tahimy), prepared by grinding sesame seeds is a favoured food in the Middle East.
Sesame is a source for high quality edible oil, containing about 47% oleic acid and 39% linoleic acid. The oil is very stable and has a long shelf life because it contains an antioxidant called sesamol (a phenolic compound) which is derived from sesamolin. Foods fried in sesame oil, e.g., potato chips, keep much longer than fried foods in other oils. The low grade oil obtained at the end of the extraction process is used industrially, e.g., in soap making.

Sesame oil is also used as a solvent or carriers in medicines and cosmetics. Sesamin and sesamolin present in the oil act as synergists with pyrethrin to effectively control insects. In some countries (e.g., Italy) all margarine and similar products must contain 5% sesame oil to permit detection of adulteration of butter by margarine. The cake or meal obtained after the oil is extracted contains 34 to 50% protein, depending on the efficiency of extraction and the cultivar. The proteins are rich in methionine but low in lysine. After extraction of the oil, the cake is often fed to animals. However, since the cake contains oil, its keeping quality is low. Where the oil is extracted in large mills the cake is often considered as expensive for use as animal feed and is processed to obtain a protein-rich flour that can be mixed with other ingredients (e.g., soybean flour, maize flour, and chick peas) to produce very nutritious human foods. Research is needed in this direction to develop more sesame-based food products.

In the Far East (e.g., China, Korea) sesame cake is sometimes used as manure. Cooked leaves of sesame are sometimes eaten. In the Far East, leaves, seeds (preferably black) are also used in folk medicines. Because of these desirable attributes there is an immediate need to increase the sesame productivity in India by 3-4 folds to meet the domestic needs and the ever-increasing demand in the international market.
Cultivated sesame suffer considerable yield losses every year due to several pathogenic diseases (Anonymous, 1972). Among the diseases of sesame reported in India are the following:

1. *Alternaria* blight caused by *Alternaria sesami* (Kawam) Mohanty and Behera.
2. Root and stem rot caused by *Macrophomina phaseolina*.
4. Stem rot caused by *Phytophthora parasitica* var. *sesami* Prasad.
5. Leaf spot caused by *Cercospora sesanucola* Mohanty.
6. Anthracnose caused by *Colletotrichum* sp.
7. Bacterial blight caused by *Xanthomonas campestris* pv. *sesami*.

Dhamu *et al.*, (1981) reported that *Alternaria* blight reduced the yield at the rate of 10.73 Kg/ha for every 1 per cent increase in disease index. Prasad *et al.*, (1997) reported 15 fungal diseases, 2 bacterial diseases, and 2 viral diseases affecting different varieties of *Sesamum* in Warangal and Karimnagar districts of Andhra Pradesh during the kharif and rabi seasons. Among the fungal diseases, the incidence of blight or bending of stem caused by *Alternaria alternata* reduced 28.8 per cent yield.
Symptomology

Usharam and Thirupathaiah (1983) described the symptoms on sesame due to infection of *Alternaria alternata* on stems, leaves, flowers, capsules and seeds of the infected plants. Dark brown irregular spots were produced on leaves with dark brown and elongated streaks or lesions of variable sizes on stem. The lesions produced on the capsules were irregular. A brownish discoloration was observed on infected seeds.

**Disease Reports**

Blight disease and Bending of stem in sesame caused by *Alternaria alternata* were observed by (Usha Rani and Thirupathaiah, 1983 and Usha Rani *et al.*, 1984)

**REVIEW OF LITERATURE**

**Morphological Characters of the Pathogen**

The species name of *Alternaria tenuis* was changed as *Alternaria alternata* by Lucas (1971). As such in the literature available earlier than 1971, *Alternaria tenuis* finds place instead of *Alternaria alternata*. The available literature on the morphological characters of *Alternaria alternata* is reviewed here under.

According to Joly (1967) conidia of *Alternaria tenuis* were brown to olive, borne in simple chain or sometimes solitary and measured 20-25 x 10μ in size. Subramanian (1971) described that *Alternaria tenuis* in culture, which
produce fairly abundant aerial mycelium which was whitish to greyish or greenish to olivaceous or brownish to almost black. Hyphae were hyaline, septate and 3 to 6μ wide. Conidiophores were somewhat aggregated into tufts or evenly distributed over the colony. Conidiophores were simple or branched, erect, olive brown, septate (septa 5-20μ apart), variable in length (5-125μ), 3-6μ wide geniculate, often with several scars and swellings terminally. Conidia were light olive or brown to dark brown. Smooth or warty, usually with 3-5 transverse septa and with longitudinal septa in the second and third cells variable in shape, ranging from beakless and ellipsoid, oval or bean shaped to distinctly beaked ones but typically obclavate with somewhat short beaks and borne in long chains.

According to Balasubramanian (1979) white fluffy colonies of *Alternaria alternata* were produced in the culture with black diffusible pigments into the medium and later turned to olive colour.

**Physiological and nutritional studies of the *Alternaria* species**

*Alternaria melongenae* grew well on potato dextrose agar (PDA) and Richard's agar media (Rangaswami and Sambandam, 1960). While *Alternaria tenuis* grew best on PDA alone (Kanjanasoon and Mathur, 1960). *Alternaria zinniae* grew well only in vegetable - 8 medium, Czapek's and modified Czapek's - dox media supported maximum growth of *A.citrí* (Rattan and Chand, 1968). Richard's medium was found to be the best for *A.brassicae* (Gupta et al., 1969).
Among different solid and liquid media, potato dextrose agar supported maximum growth of *A. cyamopsidis*, while sporulation was best in corn meal agar (Singh and Prasad, 1973). Natural media like lima bean and oat meal and semisynthetic media like potato dextrose supported good growth and sporulation of *Alternaria alternata* (Iomnudis and Main, 1973).

Glucose, asparagine medium was best for the growth of *A. triticina* although sporulation was poor to fair (Kumar and Arya, 1978). Herr and Lipps (1962) observed best growth of *A. helianthi* on juice agar media but Raju and Mehta (1982) observed good growth of *A. porri* on PDA.

*A. ruini* was found to grow well at a pH range of 4.8 - 5.5 (Pawar and Patel, 1957). Rangaswami and Rao (1957) observed that *A. cyamopsidis* could grow at a pH range of 5.0 to 9.0 with an optimum pH of 7.0. Ashour and Elkhadi (1959) found maximum growth of *A. tenuis* at a pH range of 6.0. Similarly Rangaswami and Sambandam (1960) reported that a pH of 6.7 was optimum for *A. melongena*. Hasija (1970) stated that a pH range of 2.7 to 8.0 was found to be effective for the growth of *Alternaria tenuis* and *A. citri* with an optimum pH of 5.4. Saad and Hagedorn (1970) found a pH range of 4.4 to 7.6 with an optimum pH of 6.5 for the growth of *A. tenuis*. Varma (1970) reported that the optimum pH was 6.6 for growth and sporulation of *Alternaria tenuis* and *A. solani*.

Samuel and Govindaswamy (1972) observed good mycelial growth and sporulation of *A. sesami* at a pH of 4 to 8 with an optimum pH of 5.0. Singh and Prasad (1973) reported the growth of *A. cyamopsidis* at a wide pH range
at 3.0 to 8.0 maximum being at 6.0. Mathur and Sarbhoy (1977) showed an optimum pH of 5.5 for the growth of *A. alternata*. The sesame leaf blight pathogen *A. sesamum* grow well over a wide pH range of 3.0 to 10.0 best being at 4.5 (Mohapatra et al., 1977).

Islam and Maric (1978) found that sporulation and mycelial development of *A. helianthi* were best at pH 5.3 to 5.9. Reddy and Gupta (1981) observed maximum growth of *A. helianthi* at pH of 6.0. Raju and Mehta (1982) reported that *A. porri* grew at a wide range of pH 4.0 - 8.0, with an optimum of 6.0. Susuri and Hagedorn (1986) reported that *Alternaria alternata* grew well at wide pH range of 3.7-7.1 with an optimum pH of 6.5. Likewise, *A. alternata* grew well at pH of 6.5 (Chettannanavar et al., 1987).

Pawar and Patel (1957) observed maximum growth of *A. ricini* at an optimum temperature of 28°C. Good spore germination of *A. tenuis* was observed at 28-29°C (Kapoor and Hingorani 1958). Rattan and Chand (1968) stated that the fungus *A. citri* grew at a temperature ranging from 5-35°C with an optimum temperature being 25°C.

Hasija (1970) found that *A. citri* and *A. tenuis* grew over a temperature range of 15-30°C, the optimum temperature being 25°C. Singh and Prasad (1973) have recorded the maximum growth of *A. cyamopsidis* at 30°C and minimum at 20°C. Maximum growth and sporulation of *Alternaria alternata* was observed at 30°C (Mathur and Sarbhoy, 1977).
Islam and Marc (1978) observed that optimum temperature for growth of *A. helianthi* in culture was 26°C. Kumar and Arya (1978) registered good growth and sporulation of *A. triticina* at 25°C.

Chandrasekhar and Ball (1980) reported that optimum temperature for conidial germination and growth of *Alternaria alternata in vitro* was 30°C. Optimum temperature for fungal growth and conidial germination of *A. alternata* was 25-30°C (Cairns et al., 1983), while it was 29°C for *Alternaria alternata* fsp. *lycopersici* (Malathrakis, 1983).

Xu et al. (1984) stated that the conidial germination of *Alternaria alternata* observed at the temperature of optimum 26-28°C, while it was maximum at 30°C (Tak et al., 1986).

Prabhu and Prasada (1965) found that there was no effect of light on the growth of *A. triticina* but continuous darkness supported sporulation. According to Fahim (1966) abundant sporulation of *A. porri* was found two hours after the exposure to sunlight followed by 48 hours incubation in the darkness while no sporulation was found in cultures kept either in continuous diffused light or in darkness.

The number and size of spores of *A. solani* were affected by intensity and duration of exposure to light (Singh, 1967). Gupta et al. (1972) noticed maximum growth and sporulation of *A. brassicae* with alternate day light and darkness, where as sporulation was completely inhibited by continuous light.
Bashi and Rotem (1975) observed highest spore production of *A. porri f.sp. solani* on potato leaves exposed to 12 hours darkness preceded by 12 hours light. The growth and sporulation of *A. brassicaceae* was less under continuous light than under alternate light and darkness. Higher light intensities were found to be inhibitory for growth and sporulation of *A. brassicaceae* while dark conditions favoured only sporulation but not the growth (Mukandan and Deshpande, 1979).

Cotty and Misaghi (1985) found that light affected growth and sporulation of *A. tagetica* pathogenic to marigold. Growth of the fungus was inhibited by both continuous and alternate light while it was sporulated only under alternate light.

*A. tenuis* strain - B preferred maltose for its growth (Tandon and Grewal, 1954). Tandon and Chaturvedi (1982) reported that glucose followed by sucrose and maltose supported good growth and sporulation of *A. tenuis*. *A. solani* isolated from tomato utilized mannitol, raffinose, and D-fructose effectively while the same isolated from potato utilized D-glucose, galactose and sucrose significantly (Nagaraja Rao and Appa Rao, 1965). Saad and Hagedorn (1970) reported that mannose, dextrose and maltose were the best carbon sources for the growth of *A. tenuis*.

D-fructose was found to be the best source of carbon while glycerol was the poorest source for the growth of *A. cyamopsidis* (Singh and Prasad, 1973). Sucrose supported the best growth of *A. triticiina* and *A. alternata* (Mathur
and Sarbhoy, 1977 and Mohinder Singh and Tyagi, 1978). According to Goyal (1977) maximum growth of A. alternata was observed on maltose followed by sucrose, starch, glucose and lactose. The sugar, alcohol and mannitol supported best growth of A. sesami (Mohapatra et al., 1977).

Gupta et al., (1978) observed poor sporulation of A alternata with mannitol. L-arabinose was found to be the best carbon source of A poiri. Raju and Mehta (1982) and Rajpurohit et al., (1983) observed best growth and sporulation of A. ricini with glucose. Maximum growth of A. alternata was obtained when lactose was used as a carbon source followed by glycerol, fructose, mannitol and galactose (Chettannanavar et al., 1988).

Pawar and Patel (1957) found that A. ricini required organic sources of nitrogen like asparagine and aspartic acid for its growth. According to Rajderkar (1966) isolate of A solani from egg plant utilized a wide range of nitrogen compounds with a maximum growth in peptone. A brassicae registered maximum growth and sporulation in calcium and potassium nitrates (Gupta et al., 1969).

As per the findings of Hasija (1970) A. tenuis and A. citri were able to metabolize nitrate, ammonium and organic nitrogen sources and growth varied with different nitrogen sources. Similar findings were observed in the case of A. brassicae, but it was able to utilize nitrate source also (Khandelwal et al., 1970). Singh and Prasad (1973) reported that potassium nitrate supported maximum growth of A. cyamopidis among all the inorganic nitrogen sources tried.
Goyal (1977) reported that *A. alternata* utilized nitrogen more effectively than ammonical nitrogen and maximum growth and sporulation were recorded on potassium nitrate and sodium nitrate respectively. Mohapatra *et al.*, (1977) reported that *A. sesami* utilized ammonical nitrogen more effectively than nitrate and organic nitrogen.

Mohinder Singh and Tyagi (1978) reported that asparagine was utilized by *A. triticina*. According to Reddy and Gupta (1981) peptone was found to be the best source of nitrogen for the growth of *A. helianthi*. Raju and Mehta (1982) found that potassium nitrate was the best nitrogen source of *A. porri*.

According to Rajpurohit *et al.*, (1983) *A. sesami* was able to utilize various sources of nitrogen for its growth with a maximum growth in DL-threonine and potassium nitrate while excellent sporulation was observed in sodium nitrate and potassium nitrate. Maximum growth of *A. alternata* was observed on sodium nitrate followed by calcium nitrate and arginine (Chettannanavar *et al.*, 1988).

**Toxins of Alternaria**

A toxin is defined as a product of microorganism or microorganism-host interaction, which acts directly on living host protoplast to influence either the course of disease development or symptom expression (Ludwig, 1960). Toxins and their role in plant diseases have been widely reviewed (Patil, 1974; Strobel, 1974 and 1977, Scheffer, 1976; Rudolph, 1976 and Yoder, 1980).
The first report of Alternaria involving the toxin production was made by Gottlieb and David (1943) while working on tomato wilt disease Alternaria species has been particularly a rich source of phytotoxic substances, for example alternaric acid from A. solani (Brian et al., 1949) and the phytotoxins A, B and C from A. kikuchiana (Hiroe et al., 1958) Zinooil (C_{13}H_{22}O_7) was isolated from cultures of the pathogenic fungus Alternaria zinniae (White and Starrat, 1967). Sugiyama et al., (1965 and 1966) isolated and identified a toxic compound and gave it the trivial name alternin. The structure has been confirmed by synthesis (Sugiyama et al., 1967).

Tenuazonic acid (3-acetyl 5-sec-butyl tetramic acid) is a known mycotoxin as well as phytotoxin (Harvan and Peró, 1976) produced by various Alternaria species, mainly Alternaria alternata (Kinoshita et al., 1972 and Harvan and Peró, 1976) and other fungal species i.e., Pyricularia oryzae Briosi Cavara (Umestu et al., 1972) and Phoma sorghina (Sacc.) Boerema (Steyn and Rabie, 1976). Tenuazonic acid has been detected as a natural contaminant of tomatoes and tomato products (Scott and Kanhere, 1980; Stinson et al., 1981; Stack et al., 1985 and Visconti et al., 1987), apples (Stinson et al., 1981) and olives (Visconti et al., 1986). As a plant toxin, tenuazonic acid has been proved to be the major vivotoxin in naturally P. oryzae infected rice plants (Umestu et al., 1972) and Datura innoxia Mill. (Janardhanan and Hussain, 1983) and it has been isolated as the halo-inducing toxin in tobacco brown spot disease (Mikami et al., 1971). Tenuazonic acid inhibits the growth of seedlings of number of plants including rice, wheat, rye, lettuce and Datura innoxia (Janardhanan and
Husain, 1984). Kuhmoto and Durbin (1989) have also reviewed the host specific toxins and their recognition and specificity in plant disease.

Seed germination and growth of seedlings were greatly influenced by the toxic metabolites produced by pathogenic fungi. They have either inhibitory (Gangwar, 1983, Gupta et al., 1992 and Suemitsu et al., 1992) or stimulatory effect (Murtha and Anwar, 1980 and Anwar and Murtha, 1987) on seed germination. *Alternaria* species are produced toxic metabolites which have inhibitory effect on seed germination and seedling growth (Gangwar, 1983; Gupta et al., 1992 and Gunasekhar et al., 1997). Kintzios et al., (1996) found *Alternaria* toxin reduced the callus growth as the toxin concentration increased. Chauhan et al., (1997) reported culture filtrates of *E. turricum* reduced the seed germination, shoot length, root length, callus growth and chlorophyll content in maize.

**Fungicidal control of crop diseases caused by *Alternaria* species**

Copper fungicides such as Bordeaux mixture 1 per cent, cupromagic 6.3 per cent, copper sandoz 0.3 per cent in controlling infection due to *A. solani*, *A. carthani*, *A. tenuissima*, *A. brassicicola* and *A. macrospora* on various crops (Rosa, 1954; Perwaiz et al., 1968 and Baskaran and Shanmugam, 1973). Bhargava and Singh (1992) reported that blitox-50 at 800 ppm completely inhibited the spore germination of *Alternaria alternata* causing blight of bottle gourd. Copper oxychloride was effective and reduced radial growth of the *Alternaria alternata* at 100 ppm concentration (Pandey et al., 2000).
Dithane Z-78 (0.2 per cent) was effective against leaf spot of guar caused by *A. cyamopsidis* and *Alternaria* leaf spot of sunflower caused by *A. helianthi* *in vitro* (Mathur et al., 1971 and Saksema et al., 1979).

Singh *et al.*, (1984) reported that black point of triticale caused by *Alternaria alternata* was eliminated by seed treatment with dithane Z-78 @ 2.5 g/kg seed. Bhargava and Singh (1992) reported that dithane Z-78 were completely inhibited the spore germination of *Alternaria alternata* at 800 ppm.

Narute and Utikar (1994) examined that the treatment of dithane Z-78 (Zineb) reduced the *Alternaria* blight disease of sesame. Pandey *et al.*, (2000) reported that dithane Z-78 reduced the growth and spore germination of *Alternaria alternata*.

Treatment of thiram completely inhibited the radial growth and spore germination of *Alternaria alternata* at the rate of 1000 ppm and 500 ppm. (Pandey *et al.*, 2000).

Difolatan at 0.2 per cent was effective against *A. porri* *in vitro* (Quadri *et al.*, 1982). Difolatan at 1500 ppm was effective on complete spore germination inhibition against *Alternaria alternata* caused by blight disease of Bottle gourd (Bhargava and Singh, 1992).

Chickpea cv c-727 seeds infected with *Aspergillus* species, *Aspergillus niger*, *Fusarium* species were treated with tilt, tecto-60, benlate, daconil and dithane M-45. Tilt, tecto-60, daconil, benlate and dithane M-45 reduced the
recovery from total seed borne fungi by 98.8%, 63.7%, 59.2%, 39.7% and 22.5% respectively (Rauf et al., 1991)

A combination of 0.1 per cent cumin, 0.2 per cent cosan and aureofungin (3 grams per acre) were found to be effective against Alternaria blight of cumin caused by A. bursu under field conditions (Gemawat and Prasad, 1969), Bhargava and Singh (1992) reported that aureofungin inhibit the spore germination by 63.64 per cent at the rate of 1500 ppm.

Among the heterocyclic nitrogenous compounds captan- 50 at 0.3 per cent was found to be effective for control of brown spot of sunflower caused by A. alternata (Shahri-Tehrani, 1973).

Bidani et al., (1996) found that captan, thiram, dithane M-45, benlate and bistestanol were the effective seed dressing against Fusarium sp. Aspergillus flavus, Alternaria alternata, Botrytis spp. Curvularia lunata, (Cochilobolus lunatus) Cladosporium spp. and Macrophomina phaseolina. Captan 0.2 per cent was effective growth inhibitor against banana isolate of Alternaria alternata in vitro (Mahajan et al., 1999).

Sonawane (1983) stated that captan was found promising in inhibiting the growth of A. alternata causing fruit rot of pomegranate. Narute and Utikar (1994) reported that treatment of chlorothalonil control blight of sesame caused by Alternaria sesamai. Mahajan et al., (1999) reported that treatment of chlorothalonil (0.2 per cent) inhibited the growth and sporulation of Alternaria alternata. Pandey et al., (2000) stated that treatment of
chlorothalonil completely inhibited spore germination at 500 ppm and reduced the radial growth of *Alternaria alternata* causing leaf spot of brinjal.

Organophosphorus compounds are ubiquitous in nature and they have unique multifaceted applications (Fest and Schimidt, 1982). Mainly the chemistry of dibenzodioxa-phosphocins has gained considerable importance recently because of their use as insecticides (Fest and Schimidt, 1982).

**Plant Extracts**

Protection of crop plant extracts from the ravages of fungi by synthetic fungicides and biofungicides has been the usual practice. The constant application of chemicals to eradicate the pathogens causes environmental pollution, pathogens become resistant and these chemicals not only kill the pathogens but also eradicate non-target beneficial organisms. To avoid these problems people are looking for natural plant products, which have antimicrobial properties, use of which do not cause adverse effects. Angiosperms are reported to possess a reservoir of effective therapeutants and constitute an inexhaustible source of harmless protectants (Grainge and Alvarez, 1987). Green plant and their products have proved their fruitfulness in being true to their less phytotoxic, more systemic and easy biodegradable nature (Chaturvedi and Tripathi, 1989).

Ganesan (1993) reported that leaf extracts of *C. mimosoides*, *C. tora* and *C. lesehenuaultima* inhibited the spore germination of the phytopathogenic fungus *Drechslera oryzae*.
Bhowmick and Vardhan (1981) reported that the leaf extracts of Cinnamomum and Catharanthus completely checked the radial growth of the Curvularia lunata. They inhibited Curvularia in terms of growth, sporulation and spore germination successfully followed by Azadirachta, Clerodendron Phyllanthus and Vitex.

Ramesh Tiwari et al., (1987) reported that leaf extracts of Aegle marmelos and Eupatorium capillifolium completely inhibited the mycelial growth of Penicillium oxalicum and Aspergillus flavus.

Aqueous extracts of fresh leaves and ethanol extracts of dried and powdered leaves were made from eight plant species viz Cinnamomum zeylanicum, Crysantia evicta, Psidium guajava, Alangium salvifolium, Strychnos potatorum, S nux-vomica, Thuja orientalis and Lagerstroemia parviflora and their antifungal activity was tested against the six pathogens of rice viz., Pyricularia oryzae, Rhizoctonia, Fusarium, Curvularia, Aspergillus flavus and Aspergillus niger and the results were positive in many cases. The aqueous extracts of P. guajava, S. potatorum, T. orientalis and L. parviflora exhibited greater fungitoxicity than the ethanolic extracts (Mishra et al., 1992).

Nagi Reddy (1996) tested the effect of ten plant extracts viz., Azadirachta indica, Aloe vera, Strychnos nux-vomica, Ocimum sanctum, Allium sativum, Calotropis gigantea, Cassia auriculata, Parthenium hysterophorus, Datura metel and Sapindus indica against Colletotrichum gloeosporioides and Fusarium moniliforme. Among them Azadirachta indica,
Aloe vera, Allium sativum and Datura metel were found effective in both Shewo et al. (1998) tested the leaf extract of 45 plants against A. alternata causing brown spot disease of tobacco. Best results were obtained with Thevetia peruviana and Lawsonia inermis.

Kurucheeve et al. (1997) studied the effect of 13 plant extracts viz Allium cepa, Azadirachta indica, Caesalpinia pulcherrima, Eucalyptus globulus, Calotropis gigantia, Ipomoea carnea, Lawsonia inermis, Ocimum sanctum, Parthenium hysterophorus, Piper betel, Pongamia glabra, Prosopis juliflora and Thevetia peruviana against the Rhizoctonia solani. Out of these the maximum inhibition of mycelial growth was observed in cold water extracts of Prosopis juliflora followed by Thevetia peruviana in hot water extraction. T. peruviana stood first followed by P. juliflora extract.

Smita Ranjan et al., (1999) studied in vitro fungitoxicity of 5 plant extracts against the Alternaria alternata. Out of these Aegle marmelos plant extract was found to be the most effective growth inhibition of Alternaria alternata (5000 μg/ml).

Kamalakannan et al. (2001) studied the effect of 10 plant extracts against the Pyricularia grisea. Among the leaf extracts Prosopis juliflora followed by Zizyphus jujuba, Abutilon indicum, Cynodon dactylon, Cyperus rotundus and Clerodendron inermi recorded maximum reduction in mycelial growth to the extent of 93%, 82%, 78%, 74% and 73% over control respectively where as Eclipta alba showed minimum reduction of 22% over control.
Scope of the Present Investigation

*Alternaria* leaf blight of sesame is prevalent in Andhra Pradesh since 1983 and caused great losses in yield. In spite of its occurrence in severe intensities detailed studies were not conducted on this disease. Considering the increasing demands of oils in India and abroad and in view of its role in national economy and the threat of this disease is posing for successful and profitable cultivation of sesame in India. Hence the present study is undertaken with the following objectives.

1. To study the physiological and nutritional requirements of the pathogen.
2. To isolate toxin(s) produced by *A. alternata*.
3. To study the physiological and biochemical changes in tissues at various stages of disease development.
4. To test the efficacy of fungicides *in vitro* against the growth of the *A. alternata*.
5. To test the efficacy of chemical compounds *in vitro* against the growth of *A. alternata*.
6. To test the plant extracts *in vitro* against the growth of *A. alternata*.
7. To study the effect of culture filtrate on callus growth.