Plant Archives Vol. 17 No. 1, 2017 pp. 727-732 *ISSN 0972-5210*

PLANT'S DISEASES OF DISTRICT GHAZIABAD AND ADJACENT AREAS

Rashtra Vardhana

Department of Botany, Govt. Degree College, Hayat Nagar, Sambhal (U.P.), India.

Abstract

The plants like Herbs, Shrubs, Climbers & Trees become poisonous and hazardous, not life supporting by diseases during course of their life span. So, it is the demand of time that a survey of plant diseases should be of district Ghaziabad and adjacent areas. So a survey of plant's Disease of Ghaziabad district and adjacent areas was conducted. The district having four Rivers *viz*. Ganga River, Yamuna River, Black River, Hindon River and level plain with gradual slope from North to South. There are also some hillocks near Garmukteshwar, Abdullapur, Poonth and Loni, attaining an elevation of 679.156 feet above sea level and the approximate bearings are 77^0 7` E To $78^0$ 14` E. Latitude and $28^0$27` N To $28^0$55` N. Longitude. The district covers an area of 1988 Sq. Km. It is bounded by district Moradabad in the East, district Meerut in the North, district Bulandshahr and Gautam Buddh Nagar in the south and by National Capital and Union territory Delhi in the west.

So in the present paper, all the total area of tehsils and blocks of district Ghaziabad have been studied to find out the diseases of plants, those are growing in the area. In the district, 163 plant's diseases found growing in the cultivated and fallow field, water bodies or near water bodies.

Key words : Plant disease, host, pathogen, Ghaziabad, herbarium.

Introduction

The Ghaziabad district located in the indo-Gangetic plain of north west India, being a heavily industrialized district in Uttar Pradesh, near National Capital Delhi. There are four rivers in the district viz. Ganga River, Yamuna River, Black River, Hindon River and level plain with gradual slope from North to South. There are also some hillocks near Garmukteshwar, Abdullapur, Poonth and Loni, attaining an elevation of 679.156 feet above sea level and the approximate bearings are 77^0 7` E To $78^0$ 14` E. Latitude and $28^0$27` N To $28^0$55` N Longitude. The district covers an area of 1988 Sq. Km. It is bounded by district Moradabad in the East, district Meerut in the North, district Bulandshahr and Gautam Buddh Nagar in the south and by National Capital and Union territory Delhi in the west.

A survey of plant's disease was conducted for 3 year (2008-2010) during the study period, it has been put in mind that no place should be missed because every and each place is highly valuable and important to collect and record new plant diseases.

Materials and Methods

In the present study, the total more and more plants of different places *e.g.* cultivated field, fallow fields, Ravine, River banks, Canals, Ponds, Pools, Puddles, Lakes and Water channels have been studied and 163. Diseases of plants have been surveyed. At every and each place excursions were made at least 4-5 times in a month of the year to see the plant's diseases and to collect the information. The attempts have been made to watch and record both the cultivated as well as wild plant diseases. All the plant's disease were identified with the help of expert mycologists and IARI Delhi. Their records as far as could be possible have been recorded immediately.

Observation

The table 1 is the list of plants diseases, pathogen and host were collected from different places during survey.

Table 1 : List of plants diseases, pathogen and host collected from different places during survey.

Pathogen	Host and disease caused
Phycomycetes	
1. *Synchytrium endobioticum*	*Solanum tuberosum* (Wart disease on Potato)
2. *Pythium aphanidermatum*	*Cucurbita maxima* (Fruit rot of Cucurbits)
3. *Pythium aphanidermatum*	*Carica papaya* (Stem rot of Papaya)
4. *Pythium myriotylum*	*Zingiber officinale* (Rhizome rot of Ginger)
5. *Rhizopus artocarpi*	*Artocarpus heterophyllus* (Fruit rot of Jackfruit)
Ascomycetes	
6. *Phytophthora colocasiae*	*Colocasia antiquorum* (Blight of *Colocasia*) Arbi leaf.
7. *Diplocarpon rosae*	*Rosa indica* (Black spot on Rose leaf)
8. *Ciboria caruncu-loides*	*Morus alba* (Popcorn disease on white mulberry)
9. *Cercospora neriella*	*Nerium indicum* (Leaf spot on Oliander)
10. *Claviceps micro-cephala*	*Pennesetum typhoides* (Ergot of Bajra)
11. *Podosphaera fulginea*	*Hibiscus mutabilis* (Powdery mildew of Cottonrose)
12. *Cercospora hibiscina*	*Hibiscus cannabis* (Leaf spot on Patsan)
13. *Erysiphe polygoni*	*Abelmoschus esculentus* (Powdery Mildew of Lady's finger or Okra).
14. *Sphacelothica sehwiem furtheana*	*Sacharum munja* (Loose smut on ear)
15. *Erysiphe cichora-cearum*	*Citrullus vulgaris fistulus* (Powdery mildew of *Citrullus vulgaris*)
16. *Erysiphe polygoni*	*Pisum sativum* (Podery mildew of pea)
17. *Erysiphe cichora-cearum*	*Ccoccinia cordifolia* (Powdery mildew of *Coccinia*)
18. *Zygiphiala jamai-cens*	*Averrhoa carambola* (Small black dots on fruit can be rubbed off)
19. *Deightoniella torulosa*	*Musa paradisiaca* (Fruit speckle in Banana)

Table 1 continued...

Table 1 continued...

20. *Peronospora trifolii*	*Trifolium alexandriam* (Downy mildew of *Trifolium*)
21. *Taphrina deformans*	*Prunus persica* (Leaf curl of Peach)
22. *Taphrina maculans*	*Curcum longa* (Leaf spot of Turmeric)
23. *Septoria chrysan-themi*	*Chrysanthemum indicum* (Black leaf spots on leaves)
24. *Erysiphe cichora-cearum*	*Chrysanthemum indicum* (Powdery mildew on leaves)
25. *Ustilaginoidea virens*	*Oryza sativa* (False smut of Rice)
Oomycetes	
26. *Bremia lactureae*	*Sonchus oleracea* (Downy mildew of *Sonchus*)
27. *Claviceps micro-cephala*	*Pennesetum typhoides* (Ergot of Pennesetum ,Champa)
28. *Sphaerotheca mac-ularis*	*Phaseolus mungo* (Powdery mildew *of Phasiolus*, Urd)
29. *Uromyces setaria italica*	*Setaria italica* (Rust of *Setaria*)
30. *Sclerospora grami-nicola*	*Pennesetum typhoides* (Green ear disease of Bajra)
31. *Puccinia recondita*	Rust of *Triticum vulgare*
32. *Peronospora meliloti*	*Melilotus indica* (Downy mildew of *Melitotus*)
33. *Oidium ocimi*	*Ocimum sanctum* (Powdery mildew of *Ocimum*)
34. *Puccinia oxalidis*	*Oxalis corniculata* (Rust of *Oxalis*)
35. *Puccinia penniseti*	Bajra Rust of pennisetum
36. *Puccinia coronata*	*Avena sativa* (Oat leaf)
37. *Alternaria brassicae*	*Brassica oleracea botrytis* (Leaf blight of *Brassica oleracea*)
38. *Cercospora moricola*	*Morus alba* (Leaf spot of *Morus alba*)
39. *Peronospora destructor*	*Allium cepa* (Downy mildew of Onion)
40. *Peronospora gaum-ani*	*Argemone maxicana* (Downy mildew *of Argemone*)
41. *Peronospora pisi*	*Pisum sativum* (Downy mildew of pea)
42. *Albugo candida*	*Brassica compestris* (White Rust of *Crucifers*)
43. *Albugo bliti*	*Amaranthus viridis* (White Rust of *Amaranthus*)

Table 1 continued...

Table 1 continued...

44. *Cystopus ipomoea-pandoranae*	*Ipomoea pandorana* (Stem galls on *Ipomoea*)
45. *Cystopus candida*	*Eruca sativa* (White rust on *Taramira*)
46. *Cystopus occidentalis*	*Spinacia oleracea* (White rust on Spinach leaf)
47. *Plasmopara viticola*	*Vitis vinifera* (Downy mildew of Grapes leaf)
48. *Plasmopara viticola*	*Annona squamosa* (Downy mildew on *Annona* leaf)
49. *Phytophthora infestans*	*Solanum tuberosum* (Late blight of potato)
50. *Pyricularia oryza*	*Oryza sativa* (Leaf blight of *Oryza*)
51. *Podosphaera fusca*	*Momordica charantia* (Powdery mildew of *Momordica*)
52. *Oidium lagasciae*	*Luffa cylindrica* (Powdery mildew of Luffa, Torai)
53. *Oidium rysiphoides*	*Zigyphus jujube* (Powdery mildew of jujube)
54. *Spherothica cassiae*	*Cassia occidentalis* (Powdry mildew of *Cassia*)
55. *Cercospora zizyphi*	*Zizyphus jujuba* (Leaf spot of *Ziziphus jujuba*)
56. *Peronospora effusa*	*Chenopodium album* (Powdry mildew of Bathua)
57. *Oidium leptadeaniae*	*Leptadenia reticulata* (Leaf spot of *Leptadenia*)
58. *Pestalotia psidii*	*Psidium guajava* (Leaf spots on Guava)
59. *Spherotheca pannosa*	*Rosa indica* (Powdery mildew of Rose)
60. *Podosphaera xanthii*	*Xanthium strumarium* (Powdery mildew of *Xanthium*)
Basidiomycetes	
61. *Alternaria geophila*	*Cannabis sativa* (Leaf of *Cannabis*)
62. *Melampsora lini*	*Linum usitatissimum* (Rust of Linseed)
63. *Puccinia kuehnii*	*Sacharum munja* (Rust of *Saccharum*)
64. *Alternaria dauci*	*Daucus carota* (Carrot leaf blight)
65. *Alternaria tenuissima*	*Sorghum vulgare* (Leaf blight of *Sorghum vulgare*, Black part)

Table 1 continued...

Table 1 continued...

66. *Ustilago* sp.	*Cyperus pumilus* (Smut of *Cyperus*)
67. *Cercospora miliae*	*Melia azedirachta* (Leaf spot of Melia, Bakain)
68. *Alternaria longipis*	*Necotiana tabbacum* (Leaf blight of Tobacco, tambacu)
69. *Cercospora withaneae*	*Withania somnifera (Leaf spot of Withania somnifera*)
70. *Cercospora averrhoae*	*Averrhoa carambola* (Reddish spots with whitecenters on leaves)
71. *Erysiphe cichoracearum*	*Lagenaria vulgaris* (Powdery mildew of *Lagenaria*)
72. *Entyloma oryzae*	*Oryza sativa* (Leaf smut of Rice)
73. *Uromyces phasiolitypica*	*Phasiolus vulgaris* (Rust of Beans)
74. *Uromyces trigonellae*	*Trigonella foenicum graecum* (Rust of Methi)
75. *Sclerospora graminicola*	*Setaria italica* (Green ear disease of *Setaria,* kanguni)
76. *Uromyces decortus*	*Crotalaria juncea* (Rust spots on Sann hemp)
77. *Alternaria brassicae*	*Brassica compestris* var *toria* (Leaf blight of Toria)
78. *Ustilago* sp.	*Cenchrus setigerus* (Smut of *Cenchrus*)
79. *Alternaria melongena*	*Solanum melongena* (Leaf blight of *Solanum melongena*, Brinjal)
80. *Alternaria ricinae*	*Ricinus communis* (Leaf blight of *Ricinus*)
81. *Puccinia ramognoliana*	*Cyperus rotundus* (Rust of *Cyperus*, Motha)
82. *Puccinia purpurea*	*Oxalis* sp. (leaf Rust of *Oxalis*)
83. *Puccinia* sp.	*Amaranthus spinosus* (Rust of *Amaranthus*)
84. *Alternaria cucumbrina*	*Cucumis sativus* (Leaf blight of *Cucumis sativus,* khira)
85. *Alternaria solani*	*Solanum tuberosum* (Early blight of patato)
86. *Ustilago nuda* var. *tritici*	*Triticum vulgare* (Loose smut of wheat, Gehun)
87. *Ustilago maydis*	*Zea mays* (Common Smut of Maize, Corn smut)

Table 1 continued...

Table 1 continued...

88. *Ustilago hordei*	*Hordeum vulgare* (Covered Smut of Barley)
89. *Ustilago kolleri*	*Avena sativa* (Covered Smut of oat)
90. *Ustilago cynodontis*	*Cynodon dactylon* (Loose smut of grass)
91. *Ustilago avenae*	*Avena sativa* (Loose smut of oat)
92. *Sphacelotheca sorghi*	*Sorghum vulgare* (Grain smut of *Sorghum*)
93. *Ustilago* sp.	*Dactyloctinium aegyptium* (Smut of *Dactyloctinium,* Samagrass)
94. *Alternaria alternata*	*Aloe vera* (Leaf blight of Aloe)
95. *Alternaria tenuissima*	*Datura stramonium* (Leaf blight of Datura)
96. *Alternaria alternata*	*Shorea robusta* (Leaf spot of Saal leaf)
97. *Alternaria rosicola*	*Rosa indica* (Leaf spots on rose)
98. *Alternaria cucumbrina*	*Citrullus vulgaris* (Leaf blight of *Citrullus cucumbrina*, water melon)
99. *Alternaria dianthi*	*Tagetes erecta* (Leaf blight of *Tagetes erecta*)
100. *Mlampsora lini*	*Linum usitatissimum* (Rust of Lin seed)
101. *Cladosporium cladosporioidis*	*Albizia lebbeck* (Leaf spots of Siris) *Alternaria alternata*.
102. *Cladosporium cladosporioidis*	Leaf spot of Cycas leaf.
103. *Alternaria tenuis*	*Calendula officinalis* (Leaf blight of *Calendula*)
104. *Alternaria brassicae*	*Raphanus sativus* (Leaf blight of *Raphanus*)
105. *Cercospora fici*	*Ficus benghalensis* (Leaf spots of Banyan tree)
106. *Cercospora subsessilis*	*Azardirachta indica* (Leaf spot *Azardirachta,* neem)
107. *Cercospora personata*	*Arachis hypogeal* (Tikka disease of Ground nut)
108. *Cercospora carunculoides*	*Morus alba* (Mulberry fruit)
109. *Cercospora neriella*	*Nerium indicum* leaf
110. *Alternaria alterata*	*Luffa cylindrica* (Leaf blight of Ghia-torai)
111. *Graphiola phoenicis*	*Phoenix sylvestris* (Smut of *Phoenix sylvestris*, black)

Table 1 continued...

Table 1 continued...

112. *Urocystis tritici*	*Triticum vulgare* (Flag smut of wheat on leaf, black)
113. *Urocystis cepulae*	*Allium cepa* (Smut of onion)
Deuteromycetes	
114. *Fusarium oxysporum*	*Leucas aspera* (Leaf spot of *Leucas aspera*, black)
115. *Helminthosporium gramineum*	*Hordeum vulgare* (Leaf stripe disease of Barley)
116. *Helminthosporium oryzae*	*Oryza sativa* (Leaf spots of rice)
117. *Botryodiplodia*	*Pothos scandens* (Leaf spot of *Pothos scandens*, Money plant)
118. *Cercospora personata*	*Arachis hypogea* (Tikka disease of Groundnut)
119. *Cercospora riachuels*	*Cayratia carnosa* (Leaf spot of *Cayratia carnosa)*
120. *Piricularia oryzae*	*Oryza sativa* (Blast of rice, Rice yellowish Strip)
121. *Cercospora gossypina*	*Gossypium herbaceum* (Leaf spots of Cotton)
122. *Phyllactenia dalbergiae*	*Dalbergia sissoo* (Powdery mildew of *Dalbergia*)
123. *Erysiphe cichoracearum*	*Impatiens balsamum* (Powdery mildew of Balsamia)
124. *Cladosporium zizyphi*	*Zizyphus oenoplea* (Leaf moulds *of Zizyphus oenoplea*)
125. *Fusarium oxysporum*	*Cyamopsis tetragonoloba* (Leaf spot of *Cyamopsis*)
126. *Fusarium udum*	*Cajanus cajan* (Wilt of Arher)
127. *Fusarium oxysporium*	*Vigna sinensis* (Leaf spot of *Vigna sinensis*)
128. *Curvalaria lunata*	*Setaria italica* (Leaf stripe disease of Setaria,Kanguni)
129. *Fusarium oxysporium* f. sp. *Cepae*	*Allium cepa* (Basal rot of onion)
130. *Cercospora ternatiae*	*Clitoria ternatea* (Leaf spot of *Clitoria)*
131. *Colletotrichum falcatum*	*Sacharum officinarum* (Red rot of Sugarcane)
132. *Harmodendrom* sp.	*Crotalaria juncea* (Leaf spot of *Crotalaria)*
133. *Botryodiplodia theobromae*	*Boerhaavia diffusa* (Leaf spot of *Boerhaavia*)
134. *Phyllacphora graminis*	*Cynodon dactylon* (Tar spot of *Cynodon dactylon*)
135. *Cercospora solani*	*Solanum nigrum* (Leaf spot of Makoi)

Table 1 continued...

Table 1 continued...

136. *Cercopora triumfetta*	*Triumfetta rhamnoidis* (Leaf spot of *Triumfetta*)
137. *Erysiphe acacia*	*Zizyphus jujuba* (Powdery mildew of *Zizyphus*)
138. *Phyllactinea thirumalacharii*	*Cordia myxa* (Powdery mildew of *Cordia*)
139. *Ustilaginoides virens*	*Oryza sativa (False smut of Oryza sativa*)
140. *Puccinia butleri*	*Launea asplenifolia* (Rust of Launea)
141. *Spherotheca euphorbiae*	*Croton sparsiflorus* (Powdery mildew of Croton)
142. *Cercospora cruenta*	*Phaseolus mungo* (Leaf spot of *Phaseolus mungo*)
143. *Colletotrichum capsici*	*Corchorus capsularis*(Leaf spot of *Corchorus*).
144. *Phyllactinea corylea*	*Morus alba* (Powdery mildew of *Morus alba*, Black leaf)
145. *Colletotrichum capsici*	*Capsicum annum* (Ripe rot on Chillies)
146. *Colletotrichum dematium*	*Crotalaria juncea* (Caused anthracnose in *Crotalaria*)
147. *Spherothica fuligenea*	*Cucurbita maxima* (Powdery mildew of *Cucurbita*).
148. *Cercospora physalides*	*Physalis peruviana* (Leaf spot of *physalis*)
149. *Alternaria brassicae*	*Brassica oleracea* var *capitata*, (Leaf blight of *Brassica oleracea*, Bandgobhi)
150. *Cercospora cruenta*	*Phaseolus radiatus* (Leaf spot of *Phaseolus radiatus*).
151. *Cercospora heliotropii*	*Heliotropium indicum* (Leaf spot of *Heliotropium,* Hatisura)
152. *Alternaria polandui*	*Allium sativum* (Blight of Garlic)
153. *Alternaria porri*	*Allium cepa* (Purple blotch on Onion leaf)
154. *Alternaria alternata*	*Calotropis procera* (Leaf blight of *Calotropis procera*)
155. *Botrytis squamosa*	*Allium cepa* (Leaf blight of Onion)
156. *Botrytis gladiolorum*	*Gladiolus gandavensis* (*Botrytis blight*, brown spots on leaves)
157. *Cercospora calotropidis*	*Calotropis procera* (Dark brown spotes on *Calotropis* leaves)

Table 1 continued...

Table 1 continued...

158. *Cercospora spinaceae*	*Spinacea oleracea* (Leaf spot of *Spinacea oleracea)*
159. *Cercospora achyranthina*	*Achyranthus aspera* (Leaf spot of *Achyranthus aspera*).
160. *Tolyposporium penecillariae*	*Pennisetum typhoides* (Smut of *Pennisetum*, Bajra)
161. *Alternaria dalbergiae*	*Dalbergia. sissoo* (Leaf blight of *Dalbergia sissoo*, Spotbroom)
162. *Cercospora indica*	*Cajanus cajan* (Leaf spot of *Cajanus cajan*, Arher)
163. *Cercospora punicae*	*Punica granatum* (Leaf spots on Pomegranate)

Acknowledgements

Authors are thankful to those persons whose guidance and contacts were necessary to do this task as to Department of Botany, MJPR University, Bareilly (U.P.) for Library facilities, Dr. Deeba Kamil and Dr. Dinesh Kumar Division of Plant Pathology (ICAR) & to Drs. R. C. Sharma, R. P. Pandey and B. P. Saxena for useful discussions and to Librarians of C. C. S. University, Meerut for identification of few specimens.

Factors decreasing the number of plants

There should be an awareness about the fact that plants play a vital role for the existence of life on this planet earth, but the number of natural flora is going to be decreasing continuously with unbalanced ratio due to various factors such as industrialization, urbanization, dumping garbage. Uses of fungicides insecticides and pesticides, ozon layer depletion there by global warming, less use of domestic animal dung for crops production, testing of nuclear weapons, soil-erosion, plant diseases and other polluting performed by man.

Inference

Because we are planting cultivated plants ignoring other one for the proper existence of natural flora and fauna we should spare 40% land especially for the purpose of vegetation only, we should control plant disease, undesir able activities, which are responsible for reducing the number of flora and as well as founa globally.

References

Babu, C. R. (1969). Investigation on the Herbaceous flora of Dehradun with special references to ravines and riverbeds. Calcutta Univ. *Ph.D. Thesis*, 799.

Babu, C. R. (1977). *Herbaceous flora of Dehradun*. New Delhi, 328.

Bains, S. S. and J. S. Jhooty (1978). Epidemiological studies on downy mildew of muskmelon caused by

Pseudoperonospora cubensis. Indian Phytopath., **31** : 42-46.

Bhide, P. A. and V. P. Bhide (1958). Ergot of bajra *(Pennisetum typhoides)* in Bombay state. *Curr. Sci*., **27** : 499-500.

Chattopadhyaya, S. B. and N. Mukherjee (1968b). Occurrence in nature of collateral hosts (*Cyperus rotundus* and *C. defformis*) of *Xanthomonas oryzae,* Incitant of bacterial blight of rice. *Curr. Sci.*, **37** : 441-442

Clarke, C. B. (1883). Family Convolvulaceae in Hook. f. Flora of British India London, **4** :183.

Datar, V. V. and C. D. Mayee (1981). Epidemiology of early blight of tomato caused by *Alternaria solani. Indian Phytopath*., **34** : 434-437.

Devadath, S. and S. Y. Padmanabhan (1969b). Approaches to the control of bacterial blight and streak diseases of rice in India. *Indian Phytopathology*, **23**: 153-154.

Dowson, W. J. (1957). *Plant diseases due to bacteria.* University Press, Cambridge, 232 pp.

Duthie, J. F. (1903-1929). Flora of the Upper Gangetic Plain and of the adjacent Siwalik and sub Himalayan Tracts, Vols. **1-3** Calcutta.

Flor, H. H. (1935). On physiologic specialization in *Melampsora lini* on *Linum usitatissimum* L. *Jour. Agr. Res.,* **51** : 820-825.

Folsom, D. and R. Bonde (1925). *Alternaria solani* as a cause of tuber rot in potatoes. *Phytopathology*, **15** : 282-286.

Grover, R. K. and R. D. Bansal (1970). Seed borne nature of *Colletotrichum capsici* in chilli seeds and its control by seed dressing fungicides. *Indian Phytopath*., **23** : 664-668.

Grover, R. K. and S. Dutt (1972). Seed and soil treatment with fungitoxicants for control of damping off of tomatoes caused by *Pythium aphanidermatum*. *Indian J. Mycol. Pl. Pathol*., **2** : 98-102.

Hainess, H. H. (1922). *The Botany of Bihar and Orissa*. London, **2** : 585.

Halfon-Meiri, A. (1970). Infection of chickpea seeds by *Ascochyta rabiei* in Israel. *Plant Dis. Reptr*., **54** : 442-445.

Hemmingway, J. S. (1957). The resistance of groundnuts to *Cercospora* leaf spots. *Emp. J. Exp. Agric*., **25** : 60-68.

Hooker, J. D. (1872-1879). *The Flora of British India*. Vols. **1-7** London.

Ishii, M. and M. Aragaki (1963). Ginger wilt caused by *Pseudomonas solanacearum*. *Plant Dis. Reptr*., **47** : 710-713.

Kanjilal, U. N. (1928). Forest Flora of the chakrata, Dehradun and Saharanpur Forest Divisions. U.P. Ed. **3** : (Revised by B.L. Gupta), 342.

Kulkarni, U. K. (1967). Viability of sclerotia of *Claviceps microcephala* in Relation to their weight and size. *Indian Phytopath*., **20** : 139-141.

Maheshwari, J. K. (1963). *The Flora of Delhi*. CSIR-New Delhi. 1965. IIlustrations to the flora of Delhi, CSIR-New Delhi.

Malik, R. P. (1945). Collar rot of pigeon pea caused by *Pythium Aphanidermatum. Indian J. Agric. Sci*., **15** : 93-93.

Mathur, S. B. (1962). Soil pH in relation to stem gall desease of coriander caused by *Protomyces macrosporus*. *Indian Phytopath*., **15** : 75-76.

Raizada, M. B. (1935). Contribution to Dutie's Flora of the Upper Gangetic Plain from the neighbourhood of Dehradun. *J. Ind. Bot. Soc*., **14** : 155-158.

Raizada, M. B. (1950). New or noteworthy plants from the Upper Gangetic Plain. *Ind. For Rec*. (N.S.) *Botany*, **4** : 24-46.

Seth, L. N. (1945). Studies on the false smut disease of paddy caused by *Ustilaginoidea virens. Indian J. Agric. Sci*., **15** : 53-55.

Singh, R. N. (1968b). Antibiotic control of bacterial blight of paddy. *Indian Phytopath*., **21** : 458-459.

Srivastava, U. S. and J. M. Agrawal (1973). Chemical control of powdery mildew (*Erysiphe polygoni*) on pea. *Indian Phytopath*., **26** : 537-540.

Rai, R. A., N. V. Sundaram, T. P. Bhowmik and I. D. Khan (1970). Water soluble alkaloid content of ergot (*Claviceps microcephala*) sclerotia of pearl millet (*Pennisetum typhoides*). *Indian J. Agric. Sci*., **40** : 569-572.

Swami, R. N. (1961). Gaseous emanation form groundnut infected by *Cercospora personata. Phytopath. Z*., **40** : 245-247.

Subramanyam, K. (1962). *The Aquatic Angiosperms*, Botanical Monograph No.3, Coun. Sci. Ind. Res., New Delhi. India.

Thirumalachar, M. J. (1944). Ergot on *Cynodon dactylon*. *Curr. Sci*., **13** : 28.

Tiwari, M. M. and H. C. Arya (1966). Studies on green ear disease of bajra (*Pennisetum typhoides*) caused by *Sclerospora graminicola. Indian Phytopath*., **19** : 125 (abstr.).

Vardhana, R. (2003). *Floristic Studies of District Ghaziabad with special reference to stressed habitats.* C.C.S. Univ. Meerut., *Ph.D. Thesis*.

Vardhana, R. (2006). *Floristic Plants of the world*, Vols, **1-3** New Delhi.

Vardhana, R. (2007). *Flora of Ghaziabad District,* New Delhi, 639.

Vardhana, R. (2008). *Medicinal Plants of the world.* vols. **1-5**. Daryaganj, New Delhi,1830.