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UNIVERSITY OF NORTH BENGAL

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Raja Rammohunpur, Dist- Darjeeling, West Bengal, Pin-734013, India.



Department of Botany

Print

Dr. Aniruddha Saha



DR. ANIRUDDHA SAHA

M.Sc., Ph.D.

Professor

Members of Learned Societies:

Life Member - Indian Phytopathological Society, Indian society of Mycology and Plant Pathology; Member - American Phytopathological Society

Contact Addresses:

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Subject Specialization: Molecular plant pathology & Fungal biotechnology

Areas of Research Interest: Host-Pathogen interaction and Plant virology

No. of Ph.D. students: (a) Supervised: 18 (b) Ongoing: 08.

No. of M.Phil. students: (a) Supervised: Nil (b) Ongoing: Nil .

No. of Publications: (a) Journal(s) : 72 (b) Book(s) : 01 (c) Book chapter(s): 00

Achievement & Awards:

- Fellowship of Indian Society of Mycology and Plant Pathology, Udaipur, India
- Fellow of International Society for conservation of natural resources, Varanasi, India
- Received University scholarship for 1st Class 1st in M.Sc. Part I in University of North Bengal in Botany in 1984
- University of North Bengal Gold Medal for securing 1st Class 1st position in M.Sc. (Botany) in 1985

Professional Experiences:

- 04.03.2008 – till date, Associate Professor (stage 4), Botany, Univ of North Bengal.
- 04.03.2005 – 03.03.2008, Reader in Botany, University of North Bengal.
- 04.03.2000 – 03.03.2005, Lecturer (Sr. Scale) in Botany, University of North Bengal.
- 04-03-1996 – 03-03-2000, Lecturer in Botany, University of North Bengal.
- **Participation in some important conferences/seminars/symposia/workshops**
 - Visited Beijing to attend 15th International plant protection congress at Beijing International convention centre, **Beijing, China**. May 11-16,2004
 - Visited Bangkok to attend and to chair a session at the International conference on integration of Science and Technology held at King Mongkut's Institute of technology Ladkrabang (KMILT), **Bankok, Thailand**. April, 2007
 - Glasgow To attend and present paper at The XVI International Plant Protection Congress 2007, held at Scottish exhibition & conference centre, **Glasgow, Scotland, UK**.
 - Visited **St. Louis, Missouri, USA** to attend 9th International society for Plant Molecular Biology congress October 25-30, 2009.
 - Visited National research centre, **Cairo, EGYPT**, to attend and present paper at The 1st International conference of bio-processing and application of microbial biotechnology in agriculture. Nov. 1-3, 2010
 - Visited Department of Botany, Rajshahi University, **Rajshahi, Bangladesh**, to act as an discussant in the plenary session as well as to attend and present paper in the Annual botanical conference 2010, 11th December, 2010.
 - National Seminar on "Diversity and prospects of microbial resources (MidiCon 2010)" held in Siliguri during February 26 - 28, 2010
 - Resistance of tea against *Bipolaris carbonum* in relation to biological activities of leaf diffusates. 75th Indian Science Congress, at Poona university, **Pune**. Jan.7 –12,1988.
 - Detection of cross reactive antigens and protein changes during infection with *Pestalotiopsis theae*. 46th Annual meeting of Indian Phytopathological Society and National Symposium on Ultrastructure, cytology, sexuality and variability in Plant Pathogens. Tamil Nadu Agricultural University, **Coimbatore**. Jan.27 – 29,1994.

Administrative Experiences:

- 2003-2010 : Member of Court for two terms of the University of North Bengal
- 2008-2010 : Member of the Executive council of University of North Bengal
- 2008-continuing : Coordinator, Day Care Centre, University of north Bengal
- 21.08.2008- 20.08.2010 : Worked as Superintendent of R.K. Hall of residence.
- 2002 – 2016 : Member of Special Assistance Programme (DRS-I, II & III) of UGC
- 2012-continuing : Deputy Coordinator of SAP DRS III
- June, 2006 – June, 2008: Head of the Department of Botany, University of North Bengal
- July, 2015 – continuing : Head of the Department of Botany, University of North Bengal
- 2015- continuing : Member of the Court of the University of North Bengal

Postdoctoral research and Training:

- **Research Associate** (June 1993 – Feb, 1996) In Department of Biotechnology (Min. of Sc. & Tech, Govt. of India) sponsored project at University of north Bengal.
- Completed advanced training course on **Use of tissue culture techniques** in crop improvement with special reference to potato. At Central Potato research Institute, Shimla Jointly sponsored by Indian Council of Agricultural Research & Department of Biotechnology, Min. of Sc. & Tech, Govt. of India. (13th September to 1st October 1993)
- Completed advanced training course on **Detection and management of wheat pathogens** Center of Advanced Studies in Plant Pathology, Division of Plant Pathology, Indian Agricultural Research Institute. New Delhi. (16th to 30th July 1998)
- Completed UGC sponsored Orientation Program at Academic staff college, University of Calcutta, Aug.30-Sep.27, 2001
- Completed UGC sponsored Refresher course at Department of Botany, University of North Bengal, Dec.24/2001-Jan.2002,
- Completed UGC sponsored Refresher course at Academic staff college, University of Burdwan, Aug.30-Sep.27, 2001
- Participated in Indian chapter of Asian PGPR satellite workshop on 25th Feb. 2016.

Selective List of Publications:**Books:**

1. Cultivation of Oyster Mushroom. by B.N. Chakraborty, U. Chakraborty, **A. Saha** and M. Bose. (1998). **University of North Bengal**. Published in three languages English, Bengali & Nepali

Publications:

2. Chakraborty P., Das S., Saha A, Saha D. and **Saha A.** (2016) First report of Soybean mosaic virus infecting bottle gourd plant in India., *Plant Disease* , <http://dx.doi.org/10.1094/PDIS-11-15-1330-PDN>
3. Misra T. K., Nanda A. K., Mandal P. and **Saha A.** (2016) Climatic variation of antioxidative properties, phenolic and mineral nutrients in tea (*Camellia sinensis* (L.) Kuntze) grown in North Bengal, district Darjeeling.
4. Saha Arnab, Das S., Chakraborty P., Saha B., Saha D. and **Saha A.** (2016) Two new bottle gourd fruit rot causing pathogens from Sub-Himalayan West Bengal. *Journal of Agricultural technology* **12** : **337-348**.
5. Chakraborty P., Das S., Saha B., Sarkar P., Karmakar A., Saha Arnab, Saha D. and **Saha A.** (2014) Phylogeny and synonymous codon usage pattern of Papaya Ringspot virus coat protein gene in the sub-Himalayan region of north-east India. *Can J Microbiol* , 61:555-564
6. **Saha A.**, Saha B., Das S., Chakraborty P., Sarkar P. and Saha D. (2014) Molecular detection and diversity analysis of some potyviruses associated with mosaic diseases of papaya, common bean and potato growing in sub-himalayan west Bengal. *Vegetos* **27**(2):329-337.
7. **Saha A.**, Saha B., and Saha D. (2014) Molecular detection and partial characterization of a begomovirus causing leaf curl disease of potato in sub-Himalayan West Bengal, India. *Journal of Environmental Biology* **35**(3): 601-606.
8. **Saha A.**, Das L., Saha B., and Saha D. (2014) Effect of nutritional and physiological features on *Rhizoctonia solani*, a seed borne pathogen of tea. *Journal of plant disease sciences* **9**(1): 48-54.
9. Saha B., Saha D., Biswas K.K. and **Saha A.** (2014) Distribution and molecular characterization of begomoviruses infecting tomato in sub-Himalayan tarai region of West Bengal and Brahmaputra valley of Assam in northeast India. *Indian Phytopathology* **67**(1): 92-96.
10. **Saha A.**, Saha B., Chakraborty P. and Saha D. (2013) Identification of begomovirus-infected mosaic diseases from uncultivated crops of sub-Himalayan plains of East India. *Journal of agricultural Technology* **9**(5): 1241-1252. (International)
11. Saha B., Saha D. and **Saha A.** (2013) Begomovirus causing leaf curl disease in tomato (*Lycopersicon esculentum*) in sub-Himalayan West Bengal, India. *NBU Journal of Plant Science* **7**:35-41.
12. **Saha A.**, Mandal H. and Saha D. (2013). Isolation and identification of a virulent *Ralstonia solanacearum* by *fliC* gene amplification and induction of chitinase by 2-amino butyric acid for control of bacterial wilt in tomato plants. *NBU Journal of Plant Science* **7**:95-100.
13. Mandal S., **Saha A.** and Saha D. (2013) Effect of copper on seed germination, root elongation and shoot elongation of seedlings of commercially cultivated tea varieties. *NBU Journal of Plant Science* **7**:43-49.
14. Saha B., Saha D. and **Saha A.** (2013) Detection of *Tomato leaf curl virus* in cultivated varieties of tomato and other plants of sub-Himalayan West Bengal. In "Microbial Resources for crop improvement" Eds. B. N. Chakraborty & U. Chakraborty. Satish serial publishing house, Delhi. pp. 263-275. ISBN 978-93-81226-39-1
15. Ghosh A., Saha A. and Saha D. (2013) Dominant rhizosphere bacteria as source of antifungal agents and PGPR. In "Microbial Resources for crop improvement" Eds. B. N. Chakraborty & U. Chakraborty. Satish serial publishing house, Delhi. pp. 119-128. ISBN 978-93-81226-39-1

16. Dey P. L., Chakraborty B. N. and **Saha A.** (2013) Search for Agriculturally Important Microorganisms from Terai-Doors Regions of North Bengal, Analysis of their Diversity and Application for Plant Growth Promotion and Disease Management. *Journal of Mycol and Plant Pathol.* **43**: 51-62.
17. Saha D., Mandal S. and **Saha A.** (2012) Copper induced oxidative stress in tea (*Camellia sinensis*) leaves. *J. of environ. Biol.* **33**: 861-866.
18. **Saha A.**, Saha B. and Saha D. (2012) Important begomoviruses of some economically important horticultural crops and associated crops of sub-Himalayan West Bengal and Brahmaputra valley of Assam. In *Biology of Plants and Microbes* Ed. S. Roy & D. Bose. Sarat Impression Limited, Kolkata. Levant Books, Kolkata. ISBN 978-93-80663-63-0
19. Saha D, Dhar Purkayastha G. and **Saha A.** 2012. Biological control of plant diseases by *Serratia* species: a review or a case study. In: *Frontiers on Recent Developments in Plant Science.* (eds. Priti Maheswari and Akash Goyal), Bentham e-Books. Volume 1, Chapter 7, pp 99-115 (International, Canada)
20. **Saha, D.**, Kumar, R., Ghosh, S., Kumari, M., Saha, A. 2012. Control of foliar diseases of tea with *Xanthium strumarium* leaf extract. *Industrial Crops and Products.* **37**: 376-382. **Impact Factor- 2.892**
21. Kumar, R., Saha A. and **Saha D.** 2012. A new antifungal coumarin from *Clausena excavata*. *Fitoterapia*, **83**: 230-233. **Impact Factor- 2.23(JCR 2013)**
22. **Saha D.**, Purkayastha, G.D., Ghosh A., Isha, M. and Saha, A. 2012. Isolation and characterization of two new *Bacillus subtilis* strains from rhizosphere of eggplant as potential biocontrol agents. *Journal of Plant Pathology* **94**:109-118. [**Impact Factor-0.688 JCR, 2013**]
23. Sharma, B. C., Subba, R. and Saha A. (2012) In-vitro solubilization of tricalcium phosphate and production of IAA by phosphate solubilizing bacteria isolated from tea rhizosphere of Darjeeling Himalaya. *Plant Sciences Feed* **6**(2): 96-99.
24. Sharma, B. C., Subba, R. and Saha A. (2012) *Kusthia* Sp, a novel member of phosphate solubilising bacteria from rhizospheric tea soil of Darjeeling Hills, India. *IOSR Journal of Pharmacy and Biological Sciences* **2**(3): 36-39.
25. Ghosh P., Chakraborty P., Mandal A., Rasul M.G., Chakraborty M. and **Saha A.** (2011) Triterpenoids from *Schleithera oleosa* of Darjeeling foothills and their antimicrobial activity. *Indian journal of pharmaceutical sciences.* **73**: 231-233.
26. Chakraborty B.N., Chakraborty U., **Saha A.** and Dey P.L. and Sunar K. (2011) Morphological and Molecular Characterization of *Trichoderma* isolates from North Bengal. *Journal of Mycology and Plant pathology*, **41**: 207-214.
27. **Saha A.**, Isha M., Dasgupta S. and Saha D. (2010) Pathogenicity of *Colletotrichum gloeosporioides* (Penz.) Sacc. Causal agent of anthracnose in different varieties of eggplant (*Solanum melongena* L.) determined by levels of cross-reactive antigens shared by host and pathogen. *Archives of Phytopathology and Plant Protection.* **43**: 1781-1795. (International, Germany)
28. **Saha A.**, Saha B., and Saha D. (2010) Major plant viruses: an overview. *NBU Journal of Plant Science* **4**:5-10.
29. De K. K., **Saha A.**, Tamang R. and Sharma B. (2010) Investigation on relative genome sizes and ploidy levels of Darjeeling-Himalayan Rhododendron species using flow cytometer. *Indian Journal of Biotechnology* **9**: 64-68. **Impact Factor-**
30. Chakraborty B.N., Chakraborty U., **Saha A.** and Dey P.L. and Sunar K. (2010) Molecular Characterization of *Trichoderma viride* and *Trichoderma harzianum* isolated from Soils of North Bengal Based on rDNA Markers and Analysis of Their PCR-RAPD Profiles. *Global Journal of Biotechnology & Biochemistry* **5**: 55-61.
31. Dhar Purkayastha G., **Saha A.** and Saha D. (2010) Characterization of Antagonistic Bacteria Isolated from Tea Rhizosphere in Sub-Himalayan West Bengal as Potential Biocontrol Agents in Tea. *Journal of Mycology and Plant pathology* **40**:27-37.
32. Chakraborty B.N., Chakraborty U., **Saha A.**, Sunar K. and Dey P.L. (2010) Evaluation of Phosphate Solubilizers from Soils of North Bengal and Their Diversity Analysis. *World Journal of Agricultural Sciences* **6**: 195-200.
33. Ghosh P., Mandal A., Chakraborty P., Rasul M.G., Chakraborty M. and **Saha A.** (2010) Triterpenoids from Psidium guajava with Biocidal Activity. *Indian journal of pharmaceutical sciences.* **72**: 504-507.
34. Sen S., Rai M., Acharya R., Dasgupta S., **Saha A.**, Acharya K. (2009) Biological control of pathogens causing the *Cymbidium* pseudobulb rot complex using Fluorescent *Pseudomonas* strain BRL-1. *Journal of Plant Pathology* **91**: 617-621.
35. **Saha A.**, Isha M., Dasgupta S. and Saha D. (2009). Influence of culture media and environmental factors on growth and sporulation of *Colletotrichum gloeosporioides* (Penz.) Sacc. causing anthracnose of brinjal (*Solanum melongena* L.) *Environ & Ecology* **27**:872-879.
36. Misra T. K., **Saha A.**, Nanda A. K., Biswas R. and Mandal P. (2009) Shade trees in tea plantations in different soil conditions of North Bengal. *Pleone.* **3**: 219-213.
37. Misra T. K., **Saha A.**, Nanda A. K. and Mandal P. (2009) Soil sampling in tea plantation for fertility evaluation: A guideline. *The Assam review & tea news.* **97**(12): 12-15.
38. Misra T. K., **Saha A.**, Nanda A. K. and Mandal P. (2008) Study of free-radical scavenging activity in different grades of organically and non organically produced tea. In proceedings of the national seminar on "Improving productivity and quality of tea through traditional agricultural practices" (Eds. SPS Beniwal, SL Choudhary & YL Nene). Held on 15th & 16th Nov. 2008. Organized by Asian agri-history foundation.
39. Chakraborty B. N., Chakraborty U., **Saha A.**, Dey P. L. and Sunar K. (2008) Screening of Phosphorus Solubilizing Aspergilli Isolates from Soils of North Bengal and Their Effects on Soybean. *Journal of Mycology and Plant pathology* **38**:227-233.
40. Sarma M. S., **Saha A.** and Roy A. (2008) Organotin(IV) carboxylates of cyclopropane carboxylic acid and 3-cyclohexylpropanoic acid : synthesis, characterization and biological activity. The crystal structure of bis(cyclopropanecarboxylato) tetramethyldistannoxane. *Applied Organometallic Chemistry* **22**: 369-377.
41. **Saha A.**, Mandal P, Dasgupta, S. and Saha, D. (2008). Influence of culture media and environmental factors on mycelial Growth and sporulation of *Lasiodiplodia theobromae* (Pat.) Griffon and Mable. *J.Environ. Biol.* **29**(3), 407-410.
42. Saha D., Dharpurkayastha G. and **Saha A.** (2008) Degradation of mancozeb and thiophanate-methyl by bacteria isolated from tea-garden soil. *Environment and Ecology.* **26**: 2231-2235.
43. Chakraborty B. N., Chakraborty U, **Saha A.**, Dey P. L. and Sunar, K. (2008) Searching for phosphate solubilising fungal isolates from soil. *NBU Journal of Plant Sciences* **2**: 30-38.
44. Misra T. K., **Saha A.**, Nanda A. K. and Mandal P. (2008) Variation of antioxidant properties and phytochemical constituents of tea cultivated under various agronomic conditions at Terai region of North Bengal. *NBU Journal of Plant Sciences* **2**: 58-66.
45. **Saha A.**, Dasgupta S., Mandal P and Saha D. (2008) Influence of culture media and environmental factors on mycelia growth of *Curvularia eragrostidis*. *NBU Journal of Plant Sciences* **2**: 77-85.
46. **Saha A.**, Mandal P, Dasgupta, S. and Saha, D. (2007) Plant extract induced chitinase activity in tea seedlings challenged with *Lasiodiplodia theobromae*, causal pathogen of diplodia disease. In proceedings of the international conference on "Integration of Science & technology for sustainable development." Eds. Soyong, K. Hyde, K. D..Held at **Bangkok, Thailand** during 26-27 April. pp.122-128.
47. Saha D., Isha, M. Purkayastha G.D. and **Saha, A.** (2007) Biological control of anthracnose in eggplant (*Solanum melongena*) caused by *Colletotrichum gloeosporioides* with some microbial antagonists. In proceedings of the international conference on "Integration of Science & technology for sustainable development." Eds. Soyong, K. Hyde, K. D..Held at **Bangkok, Thailand** during 26-27 April. pp.95-100.
48. **Saha A.**, Mandal P, Dasgupta, S. and Saha, D. (2007) Screening of tea varieties for susceptibility to *Lasiodiplodia theobromae* by serological techniques and induction of resistance by botanicals. In proceedings of the XVI international plant protection congress. Vol. 2, Held at **Glasgow, Scotland, UK.** During 15-18 Oct.2007. pp.716-717.
49. **Saha A.**, S. Dasgupta, and D. Saha. (2007) Immunotechniques: concept and application in plant pathology. *NBU J of Pl. Sciences* **1**: 45-49.
50. Dasgupta S., Saha D. and **Saha A.** (2007) Yield response of *Pleurotus sajor-caju* grown on different substrates of North Bengal. *Geobios.* **34**:165-168.
51. Sen S., Ghosh S., Saha A. and Acharya K.(2007) Isolation, Characterization and screening of fluorescent pseudomonads against the pathogens of *Cymbidium* Pseudobulb Rot. *Environ. & Ecology.* **25**(2): 355-363.
52. Sen S., Acharya R., **Saha A.**, Acharya K. (2006). A new report of *Cymbidium* spp. Pseudobulb rot orchestrated by *Erwinia carotovora*, *Fusarium oxysporum*, and *Mucor hiemalis* f. *hiemalis*. *Plant Disease* **90**: 1460.

53. Sen S, **Saha A.** Acharya K (2006). *In vitro* inhibition of *Mucor hiemalis* f. *hiemalis* fluorescent pseudomonas BRL-1. *Environ and eco* **24**: 606-610.
54. S. Dasgupta, D. Saha and A. Saha (2005) Immunoserological studies on pathogenicity of *Curvularia eragrostidis* in different tea varieties. *Journal of Appl Microbiol.* 98 : 1084-1092.
55. Saha, D., Dasgupta, S. and **Saha, A.** (2005) Antifungal activity of some plant extracts against important fungal pathogens of tea (*Camellia sinensis*) *Pharm. Biol.* **43**(1): 87-91.
56. Saha, D., Dasgupta, S. and **Saha, A.** 2005. Control of foliar tea diseases by leaf extracts of *Polyalthia longifolia*. *J of Mycol and Pl Pathol.* **35**(1): 132-136
57. **Saha, A.**, Dasgupta, S., Mandal, P. and Saha, D. 2005. Reduction of disease incidence in young tea plants against *Curvularia eragrostidis* by biotic and abiotic elicitors. Proceedings of the National Symposium on current Perspectives in Stress Biology. (ed. U. Chakraborty) pp. 238-242. Narosa Publishing House, New Delhi.
58. Sen S, **Saha A** and Acharya K (2005) In vitro inhibition of *Fusarium oxysporum* by fluorescent *Pseudomonas* BRL-1. *J. Botan. Soc. Bengal* **59**: 31-36.
59. **Saha, A.**; Dasgupta, S. and Saha, D. 2001. Discovery of *Curvularia eragrostidis* on tea (*Camellia sinensis* (L.) O. Ktze) leaves from clonal-cutting nurseries in North Bengal. *Environ. and Eco.* **19**(4) : 846-848.
60. **Saha, A.** Mazumdar, S., Roy Chowdhury, P. and Saha, D. 2001. A foliar disease of *Streptocaulon sylvestre* an endemic and endangered plant. *In Perspectives of Plant Biodiversity.* (ed. A. P. Das) pp. 537-544. **Bishen Singh Mahendra Pal Singh**, New Delhi.
61. B.N. Chakraborty, U. Chakraborty, **A. Saha.** R. Das and P. Basu (1997). Detection and management of blister blight of tea. *In Management of Threatening Plant Diseases of National Importance.* **Malhotra Publishing House**, New Delhi. pp. 227-235.
62. U. Chakraborty, P. Basu, R. Das, **A. Saha** and B.N. Chakraborty. (1996). Evaluation of antiserum against *Pestalotiopsis theae* for the detection of grey blight of tea by ELISA *Folia Microbiologica* **41** (5): 413-418.
63. B.N. Chakraborty, U. Chakraborty, P. Basu, R. Das and **A. Saha,** (1996). Serological relationship between *Glomerella cingulata* (Stoneman) Spauld and Schrenk and *Camellia sinensis* (L.) O. Kuntze. *In Journal of Plantation Crops.* Vol. 24 : Supplement 1996. Proceedings of international symposium on Plantation Crops. pp-205-211.
64. U. Chakraborty, G. Das, S.K. Das, **A. Saha** and B.N. Chakraborty. (1996). Phenolic changes in tea leaves after inoculation with foliar fungal pathogens. *In Frontiers in Plant Science* (ed. Irfan A. Khan) pp. 799-505.
65. B.N. Chakraborty and **A. Saha.** (1996). Detection of antifungal compounds in tea leaves after infection with *Bipolaris carbonum*. *In Recent Advances in Phytopathological Researches.* (eds. A. K. Roy and K.K. Sinha) **M.D. Publications** Pvt. Ltd., New Delhi. pp. 198-203.
66. B.N. Chakraborty, P. Basu, R. Das, **A. Saha** and U. Chakraborty (1995). Detection of cross reactive antigens between *Pestalotiopsis theae* and tea leaves and their cellular location. *Ann. of App. Biol.* **127**: 11-21.
67. B.N. Chakraborty, U. Chakraborty and **A. Saha.** (1995). Defence strategies of tea (*Camellia sinensis*) against fungal pathogens. *In Handbook of Phytoalexin Metabolism and Action.* (eds. M. Daniel and R.P. Purkayastha). **Marcel Dekker. Inc. New York.** pp. 485-501.
68. B.N. Chakraborty and **A. Saha.** (1994). Accumulation of antifungal compounds in tea leaf tissue infected with *Bipolaris carbonum*. *Folia Microbiologica* **39**(5): 409-414. **Impact Factor-**
69. B.N. Chakraborty and **A. Saha.** (1994). Detection and cellular location of cross reactive antigens shared by *Camellia sinensis* and *Bipolaris carbonum*. *Physiol. and Mol. Pl. Pathol.* **44** : 403-416. **Impact Factor-**
70. **Saha A.** and B.N. Chakraborty. (1992). Phytotoxic effect of metabolic byproducts in the culture filtrate of *Bipolaris carbonum* and *Camellia sinensis*. *Geobios* **19** : 15-17.
71. **Saha A.** and B.N. Chakraborty. (1990). Spore germination of *Bipolaris carbonum* causing tea leaf disease. *Ind. Bot. Contactor* **7**: 131-133.
72. B.N. Chakraborty and **A. Saha.** (1989). Toxin production by *Bipolaris carbonum* and its effect on tea tea leaves. *Ind. Bot. Contactor* **6** : 35-37.
73. B.N. Chakraborty and **A. Saha.** (1989). Biological activity of leaf diffusates of tea in relation to resistance to *Bipolaris carbonum*. *Environ. and Eco.* **7**(3) 717-720