Dr.A.Yusuf, Professor
Department of Botany

Director, Interuniversity centre for Plant Biotechnology, University of Calicut

Director, Directorate of Self financing courses, University of Calicut

Educational Qualifications:

Ph.D (Botany)-1996- Jai Narain Vyas University, Jodhpur India "Micropropagation and somatic cell genetics of some trees of arid regions"

M.Sc (Botany) -1991- University of Calicut, Kerala, India 67.7%

Awards

1. Selected as Pool officer, (2005) Council for Scientific and Industrial Research, Govt. of India to work on the " Characterisation of Ammonium transporters (AMTs) in relation to host- parasite interaction in *Santalum album.*

2. VATAT International fellowship, Govt. of Israel for post doctoral research.

Research Experience

Post Doctoral Fellow- April 2002-July 2004- Albert Katz Centre for Desert Agrobiologies, Ben Gurion University of Negev, Israel- Identification, isolation and expression of Ammonium transporter1 (AMT1) gene from symbiotic *Azolla-Anabaena* under different nitrogen stress conditions.

Research Associate- Sept.1997-April 2002- Tissue culture and cryopreservation unit, National Bureau of Plant Genetic Resources, New Delhi- Tissue culture,

cryopreservation and genetic stability of conserved germplasm of *Zingiber*, *Curcuma*, *Piper*, *Elleteria* and *Vanilla* in the in vitro genebank of NBPGR.

Research Funding

Setting up Interuniversity center for Plant Biotechnology, University of Calicut, Rs. 2.3 Crores, Higher Education Council, Govt.of Kerala

DNA barcode based phylogenetic analysis of the family Zingiberaceae- (Rs. 13,80,000) University Grants Commission, Ministry of Human resources Development, Government of India- 2015-2018

How does redox homeostasis and antioxidative system contribute to salt tolerance in rice varieties from different agroecological regions in Kerala, (Rs. 22,80,000), Kerala State Council for Science Technology and Environment, Govt.of Kerala
Received research grant from DST-NMBA for the project entitled High volume propagation and refinement of protocol for selected Bamboo species (Rs.27.5 Lakhs). Co-PI

Ecorestoration of eroded shoreline regions of Malappuram district using Riley Encasement Method of mangrove afforestation Kerala state council for science technology and environment Govt.of Kerala, Co-PI

Teaching experience:
From September 2005 to April 2007 as Lecturer in P.G. Department of Biotechnology, PESIT, Bangalore and taught Plant Biotechnology, Agricultural Biotechnology, Molecular Biology, Biochemistry, Cell Biology and handled practical for the above subjects. Served as external examiner appointed by Bangalore University for evaluating the students in the above subjects.

From April 2007- March 2009 Assistant Professor, Biotechnology, Dayananda Sagar Institutions, Bangalore. Teaching subjects Cell Biology and Genetics, Molecular Biology, Plant Biotechnology and practical training for the students. Served as expert to set question paper the above subjects and as external examiner appointed by Visveswarayya Technological University, Belgaum.

March 2009-March 2021: Assistant Professor, Biotechnology, Department of Botany, University of Calicut, Kerala, India.
March 2021- March 2022 : Associate Professor, Biotechnology, Department of Botany, University of Calicut, Kerala, India.
March 2022 onwards: Professor, Biotechnology, Department of Botany, University of Calicut, Kerala, India.

Research Guidance

1. Ph.D- awarded: Six, Registered-Six
2. M.Phil awarded -8 Registered - One
3. 30 M.Sc. students were guided for completion of dissertation work in tissue culture, phytoremediation and nitrogen metabolism

Gene sequence isolated
More than 300 gene sequences- published in NCBI (http://www.ncbi.nlm.nih.gov.)

Citations – 1569, h-index- 20

Publications

1. Pravisya P. and Yusuf A. (2021) Pretreatment with *Bacillus subtilis* mitigates drought induced photo-oxidative damages in okra by modulating antioxidant system and photochemical activity. Physiol. Mol Biol Plants https://doi.org/10.1007/s12298-021-00982-8
2. Santoshkumar R. and Yusuf A. (2020) Comparative differential expression of CURS genes and determination of curcumin content at different growth stages of *Curcuma longa* L. and its wild relative *C. zanthorrhiza* Roxb. Genet Resour Crop Evol https://doi.org/10.1007/s10722-020-00970-z

3. Santoshkumar R. and Yusuf A. (2020) In silico structural modeling and analysis of physicochemical properties of curcumin synthase (CURS1, CURS2, and CURS3) proteins of *Curcuma longa Journal of Genetic Engineering and Biotechnology* volume 18,

   Article number: 24

4. Lins S., and Yusuf A. (2020) Regulation of enzymatic and non-enzymatic antioxidants contribute to salt tolerance in hitherto unknown upland farmer rice varieties Current Botany 11**:** 18-27
5. Lins S., and Yusuf A. (2020) Effects of salt stress on antioxidant and ascorbate-glutathione cycle enzyme activities in Pokkali rice varieties- Vytilla1-9 Plant Science Today 7(3) 341-348
6. Lins S., and Yusuf A. (2020) Upregulation of chloroplast antioxidant system to alleviate salt dependent oxidative system in rice varieties . Journal of Stress Physiology and Biochemistry 16(3). 26-37

7. Lins S., and Yusuf A. (2020) Differential salt tolerance capacityof kaipad rice varieties evidenced by enzymatic and non- enzymatic antioxidant system Journal of plant physiology and pathology 8:1 , 1-8
8. Showmy KS and Y usuf A. (2020) Characterization of disease resistance in nine traditional rice (Oryza sativa L.) cultivars and expression of chennellu PR1 gene in response to Xanthomonas oryzae pv. Oryzae Indian phytopathology 25(2) 8-10

9. Santoshkumar R. and Yusuf A. (2019) Chemotaxonomic studies on rhizome extract compositions of twenty *Curcuma* species from South India. Biochemical systematic and Ecology 84 **:** 21-25 https://doi.org/10.1016/j.bse.2019.03.005

10. Pravisya P. Jayaram K.M. and Yusuf A. (2018) Biotic priming with *Pseudomonas fluorescens* induce drought stress tolerance in *Abelmoschus esculentus* (L.) Moench (Okra) Physiol. Mol. Bio plants **DOI :** 10.1007/s12298-018-0621-5 PMBP-D-18-00230.1
11. Yusuf, A, Aparna, M. B. and Y.M.Heimer (2018) Regulation of Glutamine Synthetase (GS) Activity and Root Morphological Plasticity in the Nitrogen Fixing *Azolla- Anabaena* Symbiont under Nitrogen Limiting Conditions Plant Physiol Pathol 2018, 6:5 DOI: 10.4172/2329-955X.1000191

12. Santhoshkumar R. and Yusuf A. (2018) Molecular evaluation using two Chloroplast genes of South Indian *Curcuma* species: Insight in to Phylogenetic relationship. International Journal of Research and Analytical Reviews **5** (**3**) 498-504

13. Aparna, M. B. and Yusuf, A (2017) Biochemical and morphological changes in *Azolla-Anabaena Azollae symbiotic system under gradient concentrations of* NH4NO3. International Journal of Development Research Vol. 07, Issue, 12, pp.17977-17984

14. A. Yusuf, P. Deepa (2017) Influence of N nutrients on GS activity and putative ammonium transporter1;2 (SaAMT1;2) expression in sandal plants (Santalum album L.) Trees 31:1773–1784DOI 10.1007/s00468-017-1583-x

15. Rajesh Kumar T and Yusuf Akkara (2017) Chemical examination of the leaf essential oil of *C. mutabilis* Sckornickova *et al*. from southern India Journal of Advances in Biological Science Volume 4 (1) 8-10

16. Rajesh Kumar T and Yusuf Akkara (2017) Chemical composition of the rhizome essential oil of *Zingiber cernuum* from south India Indian Journal of Tropical Biodiversity, 25(2) 154-164

17. Aparna, M. B. and *Yusuf, A (2017) Molecular cloning, phylogenetic analysis of AMT1 from *Azolla – Anabaena Azollae* symbiotic system . International Journal of Current Research Vol. 9, Issue, 07, pp.53890-53897

18. Rajesh Kumar T and Yusuf Akkara (2017) Analysis by gas chromatography-mass spectrometry of the essential oil of *Curcuma inodora* Blatt. (Zingiberaceae) from Southern India Journal of Pharmacognosy and Phytochemistry 2017; 6(4): 1629-1634

19. Rajesh Kumar T, SanthoshKumar R , Yusuf Akkara . (2017) GC and GC-MS analysis of the dried Leaf and Rhizome essential oil of *Curcuma aurantiaca* Zijp. (Zingiberaceae). *IOSR Journal of Pharmacy and Biological Sciences Volume 12, Issue 4 Ver. VII (Jul – Aug 2017), PP 68-75*

20. Palengara Deepa* and Akkara Yusuf . (2017) Effect of glutamine nutrition on glutamine synthetase activity and ammonium transporter expression in *Santalum album* L. seedlings Int.J.Curr.Biotechnol., 5(1):1-8.

21. Santhoshkumar R. and **Yusuf A**. (2017) DNA barcoding and phylogenetic analysis of south Indian *Curcuma* species using chloroplast matK gene. Int. J. of Adv. Res. 5(2) 615-621.

22. Deepa P. and **Yusuf A**. (2017) Effect of glutamine nutrition on glutamine synthetase activity and ammonium transporter expression in *Santalum album* L. seedlings Int. J. Curr. Biotech. 5(1) 1-8.

23. Deepa P. and **Yusuf A.** (2016) Influence of different host associations on glutamine synthetase activity and ammonium transporter in *Santalum album* L. Physiol. Mol Biol Plants 22 (3) 331-340

24. Showmy K.S. and **Yusuf A**. (2016) Chennellu- A resistant variety of traditional rice cultivar in Kerala against bacterial blight. International journal of current research. 8(03) 357-39-35743

25. Rajeshkumar T. Santoshkumar R. and **Yusuf A**. (2016) Morphological characters and random amplified polymorphic DNA based genetic diversity analysis of Curcuma species (Zingiberaceae) from India International journal of Plant Animal and Environmental science 6 (4) 2016

26. Deepa P. And **Yusuf A**. (2015) Histological and biochemical evaluation of *Santalum album* L. seedlings cocultivated with different hosts. Annals of Plant Sciences 4 (3) 1016-1021

27. Showmy K.S. Sinosh Skariachan and **Yusuf.** A. (2014) comparative modeling of pathogenesis related 4B protein (QRT5J8) of *Oryza sativa* subsp. *Indica* with the tree dimensional structure of barley 1BW3 International journal of Plant Animal and Environmental science 4 (4) : 41-50.

28. **A.Yusuf** and Rajesh Kumar T. (2014) Micropropagation and assessment of genetic stability of wild *Curcuma* species and *C. longa* morphotypes using Random Amplified Polymorphic DNA. Current Botany 5: 1-6

29. **A.Yusuf**, S. Nikhilesh, and P.S.Rao. (2012) Micropropagation and genetic stability studies of a medicinal plant, *Vitex negundo* L. *Journal of Sustainable Forestry*, 31:267–282. DOI: 10.1080/10549811.2011.567378

30. **A. Yusuf**, T.Rajesh Kumar, S. Nikhilesh, and P.S.Rao. (2011) Effects of antioxidants and gelling agents on in vitro conservation and genetic stability of *Bacopa monnieri* (L) Pennel. Int.journal of Ayurvedic and Herbal medicine 1:3 51-67.

31. **A.Yusuf** (2010) Micropropagation of two important species of *Ocimum- O.sanctum* and *O.basilicum*. Eco-chronicle 5(1): 31-34

32. **A.Yusuf** (2009) Heavy metal uptake and metabolic changes in *Allium cepa*. Eco-chronicle 4(4) 217-220.

33. R K Taygi, A Agrawal and **A Yusuf** (2006) Conservation of *Zingiber* germplasm through in vitro rhizome formation. Scientia Horticulturae 108: 210-219

34. A.**Yusuf** (2005) Clonal propagation of *Anogeissus sericea* var. *nummularia*- a rare tree of arid forestry. Journal of sustainable forestry 20 (1) 67-78

35. R K Tyagi**, A Yusuf,** P.Dua and A Agrawal (2004) In vitro plant regeneration and medium term conservation of eight wild species of *Curcuma*. Biologia Plantarum 48(1) 129-132

36. R K Tyagi and **A Yusuf** (2003) In vitro methods for medium term storage of germplasm. In: Mandal BB, Chaudhary R, Engelmann F, Bhagmal, Tao KL and Dhillon BS (eds) Conservation biotechnology of plant germplasm, NBPGR/IPGRI, Rome,Italy/FAO, Rome, Italy, pp.115-122

37. R K Tyagi and **A Yusuf** (2003) Monitoring genetic stability of in vitro conserved germplasm. In: Mandal BB, Chaudhary R, Engelmann F, Bhagmal, Tao KL and Dhillon BS (eds) Conservation biotechnology of plant germplasm, NBPGR/IPGRI, Rome,Italy/FAO, Rome, Italy, pp.

38. R K Tyagi and **A Yusuf** (2003) Isoenzyme electrophoresis. In: Mandal BB, Chaudhary R, Engelmann F, Bhagmal, Tao KL and Dhillon BS (eds) Conservation biotechnology of plant germplasm, NBPGR/IPGRI, Rome,Italy/FAO, Rome, Italy, pp. 259-262

39. **A Yusuf,** R K Tyagi and SK Malik (2001) Somatic embryogenesis and plantlet regeneration from the leaf tissues *Piper colubrinum* Link. Plant Cell Tissue and Organ Culture 65: 255-258

40. R K Tyagi**, A Yusuf,** P.Jeyaprakash and Poonam Dua (2001) Effects of polyamines on in vitro conservation of *Vanilla planifolia* (salisb.) Ames. Indian Journal of Plant Genetic Resources 14: 300-302

41. R K Tyagi and **A Yusuf** (1999) Direct regeneration and conservation of two wild species of *Piper*. *Piper colubrinum* and *P.hapnium*. International Conference on Managing Natural Resources for Sustainable Agriculture Production in 21st century, New Delhi, India. pp.818-819.

42. A.Yusuf, T S Rathore and N S Shekhawat (1999) Micropropagation of *Commiphora wightii* (Arnott) Bhandari-a threatened medicinal plant of semiarid region. Indian Journal of Plant Genetic Resources 12 (3): 371-375

Papers presented in Conferences/symposia
International- 45
National -30

(Dr.A.Yusuf)