

FORM RDRM C

PROPOSAL FOR APPROVAL FOR TAKING UP CONSULTANCY

Please refer to Statutes SA38 for more details

1. TITLE OF PROPOSED PROJECT: To develop Am-Fungal Biofertilizer for Cocos nucifera (Coconut)
2. Principal Consultant
 - a. Name: B. F. Rodriguez
 - b. Designation: Senior Professor
 - c. Department: Botany
3. CLIENT:
 - a. Firm: Deejay coconut Farm Pvt. Ltd.
 - b. Address for Communication 3rd Floor, St. Patrick's complex, Brigade Road, Bangalore.
 - c. Contact person in the Organization Saibal K De
4. Names, Designation and Department of the staff members involved in this consultancy (including students)
The consultant will train a staff from the company, who would be deputed to carry out the work.
5. Name and Address of Outside Expert (if any) involved in the Consultancy
6. Whether the Consultancy shall make use of any University facilities such as equipment or laboratory
Laboratory (Mycorrhizal Lab) and Polyhouse portion will be used
7. Time Schedule
 - a. Duration (Weeks, months or years) 18 months
 - b. Starting Date 15th Oct 2021
8. Estimate of Charges
 - a. Honoraria to consultant(s), staff of laboratory and others.
Consultant Share - Rs 90,000/-
Other members Share -
University Share (as per SA38.2.vii) - Rs 16,500 (@ 15%)
 - b. Cost of materials used in carrying out consultancy. Will be provided by the firm.
 - c. Computer charges. -
 - d. Charges for use of laboratory equipment and instruments. Rs. 15,000/-
 - e. T.A./D.A. for visits to sites. -
 - f. Administrative/overhead charges to be paid to the University (@15%) - Rs 16,500/-
 - g. Miscellaneous. Soil analysis - Rs 5000/-

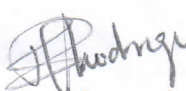
9. Give a brief description of the work to be done that includes scope of the work, Receivables from the client and Deliverables to the client. (As annexure I)

Declaration by Consultant(s)

- A. I/~~we~~ shall ensure that the proposed consultancy project does not affect my/~~our~~ regular academic, research and related activities and other duties which are assigned to me/~~us~~ by the University.
- B. Number of Consultancies at present with me/~~each one of us~~ do not exceed four in number.
- C. This is to certify that there is no close relationship between me/~~us~~ and the client funding the consultancy project, or any vendor to whom payments are to be made from the consultancy project funds, or any such issue leading to conflict of interests.
- D. We have agreed to share the Honorarium as per following distribution.

Name	Proposed share
B. F. Rodrigues	Rs 90,000/-

- E. I/~~we~~ undertake to abide by all the provisions of Statute SA-38 in connection with the Consultancy project proposed herewith.

 (B.F. Rodrigues)

Signatures of Consultants

(separate forms may be submitted if the consultants are from different department)

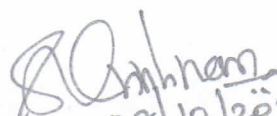
Declaration by Head of the Department

- A. For the present consultancy the CLIENT Deejay Coconut Farm Pvt. Ltd
has requested the services of Prof. B.F. Rodrigues

(letter may be placed for records) and these faculty members may be permitted to take up the consultancy work.

- B. Based on the expertise available in the Department, following member(s) of the Department have been assigned the present consultancy work.

- a.
- b.
- c.


08/10/2021

Signature of the Head of the Department

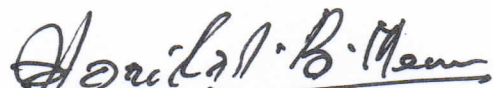
The present consultancy project has been registered in RDRM and the reference number is

GU/D-RDRM/consult./DCF/BFR/Botany/21/2021-22.



Signature of In-charge RDRM

✓
Approved/~~Not Approved~~


Vice Chancellor
08/10/2021



DEEJAY COCONUT FARM PVT. LTD.

Deejays - The name you can trust



30 September 2021

Prof. Bernard F. Rodrigues
Senior Professor, Department of Botany
Goa University
Goa 403 206

Dear Prof. Rodrigues,

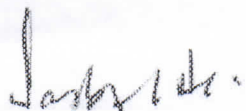
Sub: To develop AM fungal bio fertilizer for *Cocos nucifera* (coconut)

With reference to the subject, we are in receipt of your proposal (copy attached), pursuant to the discussions we had on the subject.

We are grateful to you for taking up the project under the aegis of Goa University.

Your proposal is acceptable to us and we would now request you to take this project forward. Please advise us for further needful to be done from our end.

Kind regards,


Saibal k De
Chief Executive Officer



Encl:a/a

To develop AM fungal biofertilizer for *Cocos nucifera* (coconut)

Introduction:

AM fungi are the most commonly forming associations with the majority of plant species. About 95% of the world's plant species belong to families that are characteristically mycorrhizal and depend on AM symbiosis to meet at least some of their primary needs. The conservation and efficient utilization of this diversity are of crucial importance for sustainable plant production systems. It is now universally accepted that mycorrhizal symbioses are fundamental for good plant nutrition and health, and soil quality. Focus on biofertilizers research has increased all over the world and a large amount of evidence has been collected to show the immense potential of AM fungi used for their abilities as promising biofertilizers.

Screening of AM fungi for selecting suitable species is an important preliminary step for the use of AM fungi. There is no host specificity in AM fungi. But due to host preference, in the past few years, extensive efforts have been made by mycorrhizologists to find efficient species of mycorrhizae.

In coconut, the AM fungi are known to help in the uptake of P and other immobile elements. The symbiosis can also improve host responses to environmental limitations like water stress, resistance to pathogenic fungi and pests, etc. An investigation to identify the dominant AM species involved in symbiosis with coconut plants followed by their multiplication and use in nurseries and orchards would result in unlimited benefit to coconut trees. Therefore, the present proposal is aimed to work at developing a viable and efficient AM biofertilizer for both saplings as well as grown-up coconut plants.

Deliverables:

1. To carry out soil analysis w.r.t. nutrient status viz., available P, N, and other micronutrients.
2. To study AM fungal diversity in the rhizosphere of the coconut plant.
3. To identify the dominant AM fungi colonizing the roots of the coconut plant.
4. To develop carrier-based AM fungal inoculum for coconut plant

Study period: 18 months

Manpower: DeeJay coconut Farm Pvt. Ltd. will depute one of their personnel who will carry out the study. The training for the staff member will be imparted by the undersigned.

Plan of work:

1 – 4 months (or earlier): Soil analysis; initially deliver AM fungal inoculum (for testing) with at least three viable AM species to M/s DeeJay Coconut Farm Pvt. Ltd. who will multiply and conduct trials on saplings and fully grown coconut plants. A suitable method of inoculation will be devised and demonstrated; study AM fungal diversity in the rhizosphere of coconut.

5 – 8 months: Study AM fungal diversity in the rhizosphere (contd.), prepare Trap cultures, taxonomic identification of AM species; selection of dominant viable AM species for inoculum production.



To develop AM fungal biofertilizer for Coconut (coconut)

9 – 18 months: Formulate carrier for inoculum development; Test inoculum for viability and AM fungal spore density and root colonization using a host plant species; Develop appropriate methods for inoculation.

Costs:

Cost of soil analysis: Rs. 5,000

Consultancies fees @Rs. 90,000 (Lump sum)

Laboratory/polyhouse facility @ Rs. 10,000 per year x 1.5 = 15,000

University overhead charges (15%) = Rs. 16,500

Total amount = Rs. 1,26,500

Prof. Bernard F. Rodrigues

Senior Professor, Department of Botany

Goa University

Goa 403 206

Cell: 9422446359



[Handwritten signature]

1. To carry out soil analysis w.r.t. nutrient status viz. available P, K, and other micronutrients.
2. To study AM fungal diversity in the rhizosphere of the coconut plant.
3. To identify the dominant AM fungi colonizing the roots of the coconut plant.
4. To develop carrier-based AM fungal inoculum for coconut plant.

Study period: 18 months

Manpower: Deepa Coconut Farm Pvt. Ltd. will deploy one of their personnel who will carry out the study. The training for the staff member will be imparted by the undersigned.

Plan of work:

1 – 6 months (or earlier): Soil analysis; Initially deliver AM fungal inoculum (for testing) with at least three viable AM species to M/s. Deepa Coconut Farm Pvt. Ltd. who will multiply and conduct trials on saplings and fully grown coconut plants. A suitable method of inoculation will be devised and demonstrated; study AM fungal diversity in the rhizosphere of coconut.

2 – 5 months: Study AM fungal diversity in the rhizosphere (contd.), prepare trap cultures; taxonomic identification of AM species; selection of dominant viable AM species for inoculum production.

