



### **ABSTRACT**

Forests - Implementation of the scheme of whole Transcriptomic and metobalomics of an elite clone of syzygium jambolanum an antidiabetic medicinal plant - Sanctioned - Orders - Issued.

### **Environment and Forests (FR.6) Department**

G.O.(2D)No:08

Dated: 13.02.2019

விளம்பி, மாசி - 01

திருவள்ளூர் ஆண்டு - 2050

Read:

1. From the Principal Chief Conservator of Forests letter No.J1/ 43976/2017, dated 31.05.2018.
2. From the Member Secretary, State Planning Commission letter No.1500/ PC/SPC/2018, Dated:31.12.2018.

### **ORDER :**

The Principal Chief Conservator of Forests in his letter first read above, has sent a proposal to the State Planning Commission for Implementation of the Scheme of whole transcriptomics and metobalomics of an elite clone of syzygium jumbolanum an antidiabetic medicinal plant - under Tamil Nadu Innovation Initiatives Fund for the year 2018-19 (2<sup>nd</sup> round).

2. In his proposal, the Principal Chief Conservator of Forests has stated that Diabetes is a chronic disease that affects millions of people worldwide. The disease occurs worldwide and its incidence is increasing rapidly in most parts of the world. Diabetes is becoming the third 'killer' of mankind, after cancer and cardiovascular diseases. The number of adults suffering from diabetes in India is expected to increase threefold, from 19.4 million in 1995 and 57.2 million in 2025. Glycemic control is very important for avoiding or delaying the development of these complications. It is known that several plant compounds exert hypoglycemic effects, representing potential therapeutic agents for the treatment of diabetes. Old world medical systems, like Ayurveda utilize plants and herbs to treat diabetes. Diets based on green vegetables, infusions (made using flowers or leaves in hot water), decoctions (made using the bark, seed or root in boiling water), steeped leaves or stems, or simply water extracts have been used since long. The scientific basis for the utilization of most of these so-called "natural medicines" has nowhere been elucidated but active principles have been isolated and shown to be small molecules of several chemical classes. Syzygium jambolanum (L.) Skeels, a polyembryonic species (family-Myrtaceae), is a tropical fruit tree of great economic importance. The fruit is commonly known as kolojum (Bangla), Jamun (Hindi), java plum, black plum

and Indian blackberry. It is widely distributed forest tree of India. Traditionally the jambul fruits, leaves, seeds, and bark are all used in ayurvedic medicine. Older French research shows that the seeds have a significant hypoglycemic effect in diabetic rabbits. Jamun fruit seeds and pulp have been reported to serve various purposes in diabetic patients, such as lowering blood glucose levels and delaying diabetic complications including neuropathy and cataracts. Jamun fruit reduces the sugar in the blood and is very good in the control of diabetes. Its seeds contain Glucosides, Jamboline and Ellagic acid, which are reported to have the ability to check the conversion of starch into sugar in case of excess production of glucose. The active principle is reported to be a glycoside in the seed, jamboline. However, the active principle is not characterized yet. At State Forest Research Station different propagation methods been employed and an elite variety of *Syzygium jambolanum* is been established. Elite clones will be taken up in this proposal and is focused on the transcriptomic and metabolomic analysis of *Syzygium jambolanum*, seed, leaves and fruit to identify the pathway and the genes involved in the glycoside biosynthesis pathway. Knowing the pathway and genes by whole transcriptomics and metabolomics, we can overexpress them to produce the antidiabetic metabolite. Farmers can be distributed with such elite clones with over expression of the antidiabetic metabolites supplement. The market potential is huge as many parts of the plants has been traded for various reasons. Identifying the key elements would be of immense value to the farmers, commercial traders and consumers. Therefore the PCCF has proposed to implement the scheme at a cost of Rs.18.00 lakhs for 2 years.

3. The State Planning Commission in their letter second read above has recommended the proposal of the Principal Chief Conservator of Forests at a cost of Rs.18.00 lakhs implementing the above scheme for a period of 2 years from the year 2018-19 to 2019-20.

4. The Government after careful consideration of the proposal of the Principal Chief Conservator of Forests have decided to accord administrative sanction for a sum of Rs.18.00 lakhs (Rupees eighteen lakhs only) and release a sum of Rs.12.05 lakhs (Rupees twelve lakhs and five thousand only) for the "whole transcriptomics and metabolomics of an elite clone of *syzygium jambolanum*, an antidiabetic medicinal plant" scheme to be implemented over the period of two years under State Innovation fund as detailed below:-

| <b>Sl.No.</b> | <b>Year</b>  | <b>Rs.<br/>(in Lakhs)</b> |
|---------------|--------------|---------------------------|
| 1.            | 2018-19      | 12.05                     |
| 2.            | 2019-20      | 5.95                      |
|               | <b>Total</b> | <b>18.00</b>              |

5. The expenditure sanctioned in para 4 above shall be debited to the following head of account:-

“2415 AGRICULTURAL RESEARCH AND EDUCATION – 06  
Forestry – 004 Research. State’s Expenditure – JK Research  
on Syzygium Jambolanum, an anti-diabetic medicinal plant  
under State Innovation Fund – 0 Grants-in-Aid – 03 Grants  
for Specific Schemes

(DPC – 2415 06 004 JK 0931)”

(ii) the expenditure shall be met from the State Innovation Fund by deducting under the following head of account:-

“2415 AGRICULTURAL RESEARCH AND EDUCATION – 06  
Forestry – 902 Deduct – Amount met from State Innovation  
Fund. State’s Expenditure – JA Deduct – Amount met from  
State Innovation Fund. 30 Inter-Account Transfers

(DPC – 2415 06 902 JA 3005)”

And Contra – debiting the following fund account:-

“J – Reserve Fund – (b) Reserve funds not bearing interest –  
8229 – 00 – Development Welfare Funds – 200. Other  
Development and Welfare Funds – BE State Innovation Fund  
(DPC – 8229 00 200 BE 0006) (Outgo)

6. Necessary funds are provided in revised estimates/ supplementary estimates 2018-19. The Principal Chief Conservator of Forests is authorized to draw and disburse the amount sanctioned in para-4 above.

7. This order issues with the concurrence of Finance Department vide its U.O. No. 5023/AHD&F /2019, dated : 11.02.2019.

**(BY ORDER OF THE GOVERNOR)**

**SHAMBHU KALLOLIKAR  
PRINCIPAL SECRETARY TO GOVERNMENT**

To  
The Principal Chief Conservator of Forests  
(Head of Forest Force), Chennai-15.  
The Pay & Accounts Officer (South), Chennai-35.  
The Principal Accountant General (A&E), Chennai-18.  
The Accountant General, Chennai-18.  
The Resident Audit Officer, Chennai-9.

Copy to:-

Finance (AHD&F), (BG-II) Department, Chennai-9.

The Member Secretary, State Planning Commission, Chennai-5.

The Planning Development & Special Initiatives Department,  
Chennai-9.

SF/SC.

// FORWARDED BY ORDER //

S. Mangal -  
13/2/13

Section Officer