

Outsourcing of Services at UAHS, Shivamogga

I. Areca referral laboratory, Department of Crop physiology, ZAHRS, Shivamogga

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In India areca is grown in an area of 4.73 lakh hectare with the production of 7.06 lakh tons. The production of areca has increased from 2.51 lakh ton in 1991-92 to 1 lakh ton in 2016-17. Export of the product is only 8510 tons in 2014-15 where as we are still importing 50036 ton. The areca industry is widely fluctuating because of high price disparities, threat of ban on areca products, poor value addition and highly inadequate export potentials.

Major portion of areca is used for chewing purpose. Some efforts have been made to utilize arecanut for alternate uses *viz.* areca tea, soaps, diabetes formulations, tooth powder, pan masala, gutka, softdrinks, wines, medicines / ayurvedic preparations. Further areca is processed by dry and wet processing methods. During wet processing areca is subjected to boiling in water for few hours during which several cheaply available materials like jamun tree bark, cooking oil, jaggary, beetel leaf, lime etc., are added in order impart good colour, taste and glassy appearance.

Now the areca industry is in cross roads because of use of atleast 50% unprocessed / chali areca for gutka making. Gutka is a combination of arecanut, slaked lime, paraffin, katechu along with tobacco, mouth freshner and mixture of a combination of 4000 chemicals. Gutka is stimulant and relaxant. It has chemicals of nitrosamine, arsenic, benzopyrenes, chlorine, ammonium compound etc,. Many of these chemicals are said to be carcinogenic.

Because of diverse nature of products it is highly essential to have the facilities for systematic quality analysis of the products obtained by different processing methods and also products manufactured by arecanut. The analysis is needed to understand the impact of these product on human health and enhance export potential.

An UHPLC lab has been established for quality analysis of areca products and other products. The facility can be used for qualitative / quantitative analysis of organic molecules. The laboratory includes UHPLC, deep freezer, air conditioner, precision balance, sonicator, moisture balance, vacuum pump, water softener, Millipore water purification system etc.



View of UHPLC laboratory @ UAHS, Shimoga

An ICPOES lab has been set up for analysis of areca product for their content of inorganic nutrients. This has facilitated analysis of more than 10 elements including heavy metals in a single feeding of samples.



View of ICPOES laboratory @ UAHS, Shimoga

An advanced microwave digestion system has been installed in the laboratory for precise and speedy digestion of plant / soil samples before they are used for chemicals analysis : similarly, a fibrotron instrument is included in the laboratory for precise estimation of fibre content in plant samples.



Microwave Digestion system

Summary of beneficiaries of the laboratory

Sl No	Particulars	2015-16	2016-17	2017-18	2018-19
1	Areca project samples	850	850	100	110
2	UAHS samples	125	300	500	400
3	Students samples	25	75	100	150
4	Institutional samples	30	45	25	30
5	Farmers samples	48	15	150	175

**Price list for analysis of samples at Areca referral laboratory,
Department of Crop physiology, ZAHRS, Shivamogga**

Sl. No.	Type of analysis	UAHS Shivamogga		Other Academic Institutes	Private Samples	Students other than UAHS Shivamogga
		Students	Schemes			
A.	UHPLC : Arecoline, Polyphenol, Vitamins, Tannins and other organic compounds	Rs.750/-	Rs.2100/-	Rs.2500/-	Rs.3000/-	Rs.1500/-
B.	ICPOES: Inorganic elemental analysis	Rs.2100	Rs.6000/-	Rs.7000/-	Rs.8400/-	Rs.4200/-
C.	Fibertron: Fiber Analysis	Rs.300/-	Rs.500/-	Rs.600/-	Rs.800/-	Rs.400/-
D.	Muffle furnace: Ash	Rs.100/-	Rs.200/-	Rs.300/-	Rs.400/-	Rs.150/-
E.	Moisture balance : Moisture	Rs.100/-	Rs.200/-	Rs.300/-	Rs.400/-	Rs.150/-

Note :

- 1) 1-15 samples above rates are applicable.
- 2) 16-30 Samples 5% discount on existing rate.
- 3) 31-75 samples 7% discount on existing rate.
- 4) 76 and above 10% discount on existing rate.
- 5) Besides the above price 15% Service tax is applicable.