

IMPACTS OF CONSUMING ARECANUT AND ITS BY-PRODUCTS ON HUMAN HEALTH

(A Medico Sociological study)

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Introduction:

Arecanut plays an important role in the livelihood of people in India. It provides income, job, and it is the bread and butter of crores of people. In recent days arecanut is cultivated in a scientific way. Arecanut has nutrients and medicinal values which also can be used to prepare medicines for human beings and animals to treat in some diseases. Arecanut is a food item as specified by the supreme court and high court rulings. Arecanut farmers are facing lot of field problems which are to be addressed by research and development agencies. Improved technologies by CPCRI, SAUS, DASD, KVKS, and other reputed institutions has not reached the beneficiaries to the desired extent. Arecanut farmers are facing climate problems, water facility problems, market problems, and legal problems also.

Arecanut is an important palm species horticultural crop in India and in some foreign countries also. Arecanut plays an important role in Indian society socially, culturally, economically, and in religious activities also. At present in India arecanut is growing in 4,72,000 hectare area. Approximately 7,36,000 tonnes arecanut is growing in India. Karnataka state is a major grower of arecanut in India. According to reliable information approximately 5,00,000 families are directly and indirectly depending upon arecanut crop. Their bread and butter is arecanut crop only. Nearly 40 crore people are using arecanut and its by-products in India. There is about total 60,000 crores of rupees turnover by arecanut and its allied business in India. Along with our arecanut we are importing arecanut from Indonesia, Bangladesh, Myanmar, Thailand, Srilanka, and from other foreign countries also.

Arecanut is generally used for masticatory purpose and other forms of arecanut are also used by people. Arecanut as got versatile chemicals in it, it has got good medicinal

values also. Due to modern systems of medicines and discovery of novel therapeutic molecules, the traditional knowledge and use of arecanut for medicinal purposes is decreasing day by day.

The major constituents are polyphenols, fat, polysaccharides, fiber and protein. Alkaloid is present as a minor but significant constituent. Polyphenols, which are major components.

Review of earlier study:

- 1. M Senthil Amudhan and others:** A review of phytochemical and pharmacological potential of Areca catechul seed (Division of physiology and biochemistry, Central plantation crops research institute, regional station, vital-574243, Karnataka, India)

According to the author arecanut as being used for medicinal properties more than 2000 years in South African countries. Various pharmacological activities have been found in the arecanut and from its ingredients. Arecanut was used for the prevention of oxidative stress induced diseases in human beings in the form of medicines or drugs. It is very essential to identify the medicinal properties of native natural plant sources to acquire to their recognized medicinal properties. It will encourage the use of arecanut as a new therapeutics for various diseases. In his study the uses of arecanut as an herbal drug and its therapeutic application prospects has been explained.

- 2. S Keshava Bhat and others** (executive officer, Arecanut research and development foundation, Mangalore, Karnataka):

Arecanut is not a carcinogenic in normal dose if chewed without tobacco. This study reveals that health effects of arecanut chewing show that it is not carcinogenic in normal dose. It was reported that an adult human being Masticate up to 0.5 grams of arecanut / Kg body weight / day. Animal studies have revealed that feeding of processed arecanut dried or boiled at 1.0 grams per Kg body weight / day and pan masala up to 1.67 grams / Kg body weight / day were safe for mice. Arecanut paste when applied to bare skin at 1.5 gram/ Kg body weight / day was safe for hamsters. Feeding of arecoline, the psychologically most active chemical compound of arecanut, was found safe in mice at 100 milligrams/ Kg body weight/day. The LD50 value for arecanut extracts was reported to be >15,000 mg / Kg body weight in rats. The betel quid at a concentration of 0.1 ml of 2% solution without tobacco was also

found safe in mice. The arecanut and betel quid extracts without tobacco were even reported to retard the development of tumors in mice and cure breast cancer cells, gastric cancer cells and liver cancer cells in human beings. Several population studies carried out in India and abroad on the effects of chewing betel quid without tobacco did not show any significant harmful effects on human health. It is really sad to note that such reports were sidelined by most of the researchers and reviewers.

3. **Li Shizhen**, (Compendium of Materia Medica, foreign language press, 24 Baiwanzhuang road, Beijing 100037, China).

Li Shizhen collection is a source of information on medicine, mineralogy, botany, zoology, and natural sciences. His book was published in the year 1593. It was a original text and explanatory notes to place the contents in the context of modern scientific research. In the above collection of medicine book from China reveals arecanut was used in China for several thousand years for several medicinal purposes. According to the author it kills worms, tape worms, it help in digestion.

Li Shizhen explains the book written by Luo Dajing by name Helin Yulu reveals that people in southern parts of China were consuming arecanut to prevent the attacks of miasma. Miasma is a contagious power that as an independent life of its own. According to miasma theory is an absolute medical theory that explains diseases such as Cholera, Chlamydia or (black death) were caused by miasma due to its bad air and also known as night air caused by rotting organic matter. Miasma theory was accepted in ancient time in Europe and China. this theory was given up by scientist and physicians after 1880, replaced by the germ theory of disease. And arecanut was used in the manufacture of country made wine. Sometimes arecanut was used to decrease the wine intoxication also in China. It was used as a food item to overcome hungry.

4. **Liu-Hsiao-Liang** (1936) in one of the oldest medical journals from China called "Chineses Medical Journal" made an elaborate study of clinical properties of betel nut as use full taeniafuge. It was mentioned in the report that the betel nut was used as a remedy against the tapeworm in human beings nearly 1,400 years ago in China. The "Arecoline" is the main ingredient in arecanut is very effective in expelling the tapeworms from the human stomach.

Objectives of the study:

- 1) To Collect the information about arecanut and its by- products
- 2) To Know the impacts of consuming arecanut and its by- products on human health.

Hypothesis;

Consuming arecanut and its by-products are also having positive impacts on human health

Statement clarification:

Arecanut scientific name is *Areca catechu*, its rank is Species and higher classification is Areca palm. Arecanut is an important commercial crop in India, it has provided lacks of jobs and thousands of crores of income to the nation. Arecanut contributes a major portion for development of GDP in India. Even though it was getting so many medicinal values by the false propaganda on arecanut as created the ripples of anxiety among all the stakeholders of arecanut. In this study we are going to explain about the positive impacts of arecanut and its by- products on human health.

Arecanut and its by-products

Arecanut can be broadly divided into 2 items

1. Boiled red type (Red Supari) (Rashi edi, Saraku, beatte, Kari beatte, Gorabalu and other).
2. White challi type white Supari.

By-products:

Tambula, Sweet supari, scented Supari, herbal supari, Kaaju supari, Pann Beeda, plain supari, Daya areca, mouth freshener, areca wine, areca based soft drinks, areca gin, coloring cloths, color mehandhi, and other by- products of arecanut are arecanut leaf plates and cups, arecanut leaves used to manufacture nutritious food for cattle, arecanut tree stem is used for construction purposes.

Human health:

According to World Health Organization (WHO), it is a "State of complete physical, mental, and social well being, and not merely the absence of disease or infirmity." Health is dynamic condition resulting from a body's constant adjustment and adaptation in response to stresses and changes in the environment for maintaining an inner equilibrium called homeostasis.

Medico- Sociological study

It's the method of the study of any health issues based on medical along with on sociological perspectives, and also study of the issues like the social aspects on the basis on socio medical perspective

Methodology:

In this study, we used simple random sampling method on selected 20 respondents only. We have used direct interview method for collection of information by respondents. And also used primary and secondary sources to collect the data.

Source of Information:

Primary sources: The data were collected from primary sources with 20 respondents who are consuming arecanut and its by- products since decades. The respondents have been interviewed for a medico sociological study.

Secondary sources: Sources are collected from research articles, journal reviews, books, magazines, newspapers, and websites.

Limitations of the study area

- Respondents age is above 40 years
- Respondents are consuming arecanut from 20 years
- Our study group belongs to Tarikere taluk only

Topographical features of the study:

Chikkamagalore is a district in the South Indian state of Karnataka. Coffee was first cultivated in India in Chikkamagalore. The mountains in Chikkamagalore which are a part of the Western Ghats are the source of rivers like Tunga and Bhadra. The Geographical scope of the study area is Chikkamagalore Dist., in Karnataka state regarding public policy and sustainable development. Chikkamagalore Dist., will come under the famous western guts' area. Chikkamagalore Dist., famous for Coffee, tea, Cardamom, Rubber plantation crops. It is also famous for horticulture crops like coconut, Aracanut, Banana, Mango, Sapota and other crops. It is also famous for Paddy, Raghi, Jower and other food crops. It is also famous for commercial crops like chilies, Oninen, Potato and other crops. It is also famous for tourism sports like Dattapita, Mullaiyana giri, Kallatthigiri, Kemmanna gundi, Amruthapura temple and so on.

Information regarding Chikkamagalore Dist:

According to 2011 census:

Geographical location 12 54' and 13 53' north latitude, 75 04' and 76 21' East longitude. Temperature is 310C (Max), 140C (Min). Average Rainfall is 1925mm. Rivers are Tunga, Bhadra, Vedavathi, Yagachi, Hemavati and Netravathi. Area is 7201 sq km. District headquarter is Chikmagalur. Population are 10,17,283. Density of Population is 158/km. The sex ratio is Female 969 per 1000 males. The Literacy rate is 79.25% (Male 85.41% and Female 73.16%). Major Industrial areas are Chikmagalur -13.45 acres, Birur – 11.25 acres N.R.Pura - 10.00 acres, Amble Industrial,- 144.23 acres.

As on 2013-2014 Horticulture detail statics of Govt. Of Karnataka state:

SL.NO.	NAME OF THE TALUK	AREA IN HECTARES	CROPS IN TONES	YIELD/HECTARES IN TONES
01	Tarikere	9,432	18,864	2.0 tons/ hectares

Karnataka state:

175 Taluks	2,51,185 hectares	3,67,303 tons	1.46 tons/ hectares
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Data Analysis:

The data collected by using all the research method and other sources are analyzed by essential statistical techniques by using analysis of data and research report. The data were collected on medico social prospective.

Table. 1 Personal Profile of the Respondens

SL NO	Personal profile of the Respondents				
1	Age	40-50	51-60	61-70	71+
		03	08	09	00
2	Gender	Male			Female
		10			10
3	Caste	SC	ST	OBC	Others
		03	05	08	02
4	Religion	Hindu	Christian		Muslim
		18	01		01
5	Education	Illiterates	Primary education	Secondary education	Higher education
		02	08	08	02
6	Yearly Income	Up to	1,00,001 to	1,25,001 to	1,50,001+above

		1,00,000	1,25,000	1,50,000		
		09	04	05	02	
7	Marriage	Married	Bachelor	Widow		
		20	0	0		
8	Family	Joint	Nuclear			
		02	18			
9	Areca nut plants in acres	0-1	1.1-1.5	1.6-2	2.1-2.5	2.6+
		10	03	04	02	01

In demographic information age, gender, education qualification, marital status, income size, type of family etc, are various information's are followings

- **Age:** Age is the important factor at the time of interviewee because if the respondents are under 18 years age they will be considered as minors. In our study, 15% respondents ranging from 40-50 years are consuming arecanut and its by- products for 20 years, 40% of the respondents ranging from 51-60 years are consuming arecanut and its by -products for 23 years, 45% of the respondents ranging from 61-70 years are consuming arecanut and its by- products for 25 years. And they are not affected by any disease.
- **Gender:** We interviewed, 50% of the male respondents. 50% of the female respondents. Regarding the gender is concerned, no discrimination is found in consuming arecanut and its by- products.
- **Cast:** At the time of research in India cast plays an important role even though India is a secular state. We interviewed, 16.7% SC, 27.8% ST, 44.4% OBC and others 11%.
- **Religion:** India is the motherland of several religions. Even though its. Secular state all the statistics are collected on the basis of religion like Hindu, Muslim, Christian, Jains, Parasis, Buddhists, siks and so on.
 - We interviewed Hindus 90%, Christians 5%, and Muslim 5% respondents.
- **Education:** Education plays in important role in India. Due to several governmental and non-governmental (NGO`s) institutional efforts. The majority of the respondents are literates. In our study there are 10% respondents are Illiterates, 40% of the respondents are having primary education, 40% are respondents having Secondary education and 10% of the respondents are having higher education.

- **Yearly Income:** In our study, 45% of the respondents are having a yearly income of 1,00,000 rupees, 20% of the respondents are having a yearly income ranging from 1,00,001-1,25,000 rupees, 25% of the respondents are having an income of 1,25,001-1,50,000 rupees, and 10% of the respondents are having an income of 1,50,001 rupees and above.
- **Marriage:** In our Study all our respondents are married.
- **Family:** In our study, 10% of respondents are living in joint family system, 90% of the respondents are living in the nuclear divided family system.
- **Areca nut plants in acres:** In our study, 50% of the respondents are having 0- 1 acres of arecanut garden, 15% of the respondents are having 1.1-1.5 acres of arecanut garden, 20% of the respondents are having 1.6-2 acres of arecanut garden, 10% of the respondents are having 2.1-2.5 acres of arecanut garden and 5% of the respondents are having 2.6 acres and above arecanut garden.

ANALYSIS OF DATA

Table no- 2 Thematic analysis of the study

Sl no	Impacts of consuming Arecanut and its by-products on human health.	Yes	No	Don't Know
01	Do you consume arecanut and its by- products for medicinal values.	100%	-	-
02	Do you opine chewing arecanut helps digestion	100%	-	-
03	Do you opine chewing arecanut and its by-products will strengthen the gums, the teeth and safeguard the teeth from cavities.	100%	-	-
04	Do you feel chewing of arecanut and its by-products as an appetizer and a stimulant?	85%	-	15%
05	Do you feel the consumption of arecanut will give relief to dry mouth.	100%	-	-
06	Do you opine consumption of arecanut will prevent anemia.	90%	-	10%
07	Do you feel the consumption of arecanut will help to avoid the problems associated with the stomach worms.	100%	-	-
08	Do you feel the consumption of arecanut will control diabetes.	80%	-	20%
09	Do you feel arecanut consumption prevents cellular degeneration, by the help of antioxidants?	90%	-	10%
10	Do you feel the consumption of arecanut helps to control hypertension (Blood pressure).	80%	-	20%
11	Do you opine arecanut is symptom of good luck and prosperity in our tradition?	100%	-	-
12	Do you opine exchange of arecanut and betel	100%	-	-

	leaves finalizes the negotiations.			
13	Do you agree the value lost in arecanut will not return by gifting an elephant?	100%	-	-
14	Do you agree all family programs, rituals, pooja's will be conducted with arecanut and betel leaves only.	100%	-	-
15	Do you opine consuming arecanut and its by-products with betel leaves will bring you social status.	90%	05%	05%
16	Do you feel more research studies should be conducted on the medicinal values of arecanut and its by- products.	100%	-	-
17	Do you feel negative notions of arecanut and its by- products should be cleared in the society.	100%	-	-
18	Do you opine arecanut related co-operative societies are working in favor of arecanut growers?	100%	-	-
19	Do you opine consumption of arecanut and its by- products leads to diseases.	-	100%	-
20	Do you opine arecanut and its by- products are carcinogenic?	-	100%	-

1. Do you consume arecanut and its by- products for medicinal values:

100% of respondents are consuming arecanut for its medicinal values only. For thousands of years, it has been revealed by Indian ancient history and Asian ancient history also. Arecanut is mainly grown in southern and southeastern parts of Asia, including India, China, Malaysia, Indonesia, Philippines, New Guinea and other countries. In all these countries arecanut is used in traditional herbal medicine. various pharmacological activities have been found in arecanut. The main ingredients of arecanut are polyphenol 20%, fat 15%, Starch 20%, Alkaloids 0.5%, the polyphenol includes 10% of catechin, 2.5% of epicatechin, 12% of leucocyanidin, the remaining 20% portion being complex flavonoids (bioflavonoids) in varying degrees of polymerization.

2. Do you opine chewing arecanut helps digestion:

100% of Our respondents explained consumption of arecanut helps in creation of saliva. The saliva produced through the chewing process is considered to enhance digestion. It helps in the maintenance of good health.

3. Do you opine chewing arecanut and its by- products will strengthen the gums, the teeth and safeguard the teeth from cavities:

100% of our respondents opine that chewing arecanut and its by- products is strengthen the gums and the teeth. It is known from their elders also and it has been in practice since generations. The vitro research method, (conducting experiments in cellular biology outside the living organisms or cells), explains the water extracted from betel nuts shows anti- microbial activity towards particular strains of oral bacteria. For this reason it helps strengthen teeth and gums. In olden days arecanut was used in the manufacture of toothpaste to prevent cavities.

4. Do you feel chewing of arecanut and its by- products as an appetizer and a stimulant?:

85% of respondents opine, arecanut is most commonly chewed as a constituent of betel quid which is a combination of betel leaf, arecanut and slaked lime. After consuming the above mixture the respondents feel the food will be digested in a good manner and also it act as a stimulant to refresh the mind and body. It is a physical and mental feeling observed by the respondents. 15% of our respondents don't know the correct answer for the question.

5. Do you feel the consumption of arecanut will give relief to dry mouth:

100% of our respondents opined consumption of arecanut will provide relief to dry mouth. At the time of consuming arecanut a saliva will be produced and it provides relief to dry mouth. According to available information the relief for dry mouth will provide more healthy secretions.

6. Do you opine consumption of arecanut will prevent anemia.

90% of our respondents opine that arecanut has been used for several years like a medication, especially for physically weak persons and pregnant women who are suffering from iron deficiency and low blood glucose levels. Arecanut contains more iron contains which will help for human health. In the anemic patient there is a deficiency of red cells or of hemoglobin in the blood. 10% of the respondents opine that they don't know the correct answer.

7. Do you feel the consumption of arecanut will help to avoid the problems associated with the stomach worms:

100% of our respondents opine that consumption of arecanut definitely helps to solve the problems related to stomach worms. Consuming arecanut assist in the treatment of stomach worms just like the tapeworms and also the roundworms. Arecanut is also one of the vermifuge that can help expel the stomach worms. Vermifuge is an agent that destroys or parasitic worms (Anthelmintic).

8. Do you feel the consumption of arecanut will control diabetes:

80% of our respondents opine that consumption of arecanut generally help to control diabetes. Arecoline a biochemical which is present in arecanut will help considerably to control diabetes. So many laboratory experiments revealed arecoline can control blood glucose levels for a considerable time period. Arecoline creates a physiological action in the human body. In recent days Diaareca has been a value added product of arecanut which is used to manage diabetes. This product is an outcome of fundamental research undertaken to find out the indigenous technology knowledge (ITK) traditionally prevalent among rural and tribal peoples of the Malenadu region of Shivamogga and Uttara Kannada district. Diaareca contains beetle leaves, slacked lime, tender arecanut, jamboo seeds and other herbs. 20% of our respondents don't know the correct answer to the question.

9. Do you feel arecanut consumption prevents cellular degeneration, by the help of antioxidants?:

90% of our respondents opine consumption of arecanut will help to prevent cellular degeneration. Cellular degeneration is a concept of a degeneration of cells due to old age, diseases, wounds and other health reasons. Polyphenol is functional compounds in plants, which possess many bio activities beneficial for human health. The Polyphenol compounds present in the arecanut helps to control cellular degeneration with the help of antioxidants. Arecanut is an excellent food material with the potential antioxidant properties. This antioxidant properties of arecanut will avoid cellular degeneration of cells within the old ones. 10% of the respondents don't know the correct answer for the question.

10. Do you feel the consumption of arecanut helps to control hypertension (Blood pressure):

80% of our respondents opine that consumption of arecanut helps to control blood pressure. So many studies revealed that tannins present in arecanut will help in managing high blood pressure activity by inhabiting the reaction to both angiotensin I and II. Angiotensin is a peptide hormone that causes vasoconstriction and an increase in blood pressure. It is a part of the rennin angiotensin system which regulates blood pressure. 20% of our respondents don't know the correct answer for the question.

11. Do you opine arecanut is symptom of good luck and prosperity in our tradition?:

100% of our respondents opine that arecanut and betel leaves are used for several thousand years, it is the part and parcel of the life. Especially in Indian tradition people provide the auspicious, top place for arecanut and betel leaves in their day to day life. They opine arecanut is a symptom of good luck and prosperity.

12. Do you opine exchange of arecanut and betel leaves finalizes the negotiations:

100% of our respondents opine that arecanut and betel leafs plays an important role while finalizing the negotiations. In olden days there were no stamp papers, agreement papers and others to finalize the trade and business. In all those times both the offer and acceptance of trade and business was finalized by giving arecanut and betel leaves. According to Indian tradition, both parties should abide By the terms and conditions of the business or contract. It may be a social contract also.

13. Do you agree the value lost in arecanut will not return by gifting an elephant:

100% of our respondents opine that values, morality, ethics, are the basis of Indian heritage. There is a pre'mise morality lost in arecanut will not return if they gift a big elephant also. In our society values, morality, ethics are the fundamental social aspects which were in practice for several thousand years. In this aspect also our respondents highlight the importance of arecanut.

14. Do you agree all family programs, rituals, pooja's will be conducted with arecanut and betel leaves only:

100% of our respondents opine without arecanut and betel leafs no programs and rituals will not take place. Here our respondents highlight the position of arecanut and betel leaves in Indian traditions and customs. For long ago Indian peoples were

providing major preference for arecanut and betel leaves in all important events of the family and society.

15. Do you opine consuming arecanut and its by- products with betel leaves will bring you social status:

90% of the respondents opine that consuming arecanut, betel leaves with slaked lime was a practice from ancient days, now also it is continued. In all family functions, social functions, and in religious rituals people will provide arecanut, betel leaf, slaked lime as Tambula. Providing Tambula the rituals will end up. So consuming arecanut betel leaves with slaked lime is a general practice in Indian tradition and it will bring social status also. (Tambula contains arecanut, betel leaves, slaked lime, Chachu, clove, cardamom, in a fixed proportion). Tambula avoids bad mouth smell, it cleans the teeth, and it helps in digestion also. The importance of Tambula was explained in Tambula manjary it is a Sanskrit epic. 5% of our respondents opine that chewing of arecanut, betel leaves with slaked lime will not bring social status. 5% of our respondents opine that they don't know the aspect of social status for consuming arecanut, betel leaves and slaked lime.

16. Do you feel more research studies should be conducted on the medicinal values of arecanut and its by- products:

100% of our respondents opine that more research studies should be conducted on arecanut and its by- products. arecanut was used since long ago still there are anti propaganda is going on arecanut and its by- products. Anti propaganda is defaming the sociological value of arecanut in the society. So scientific research should be conducted on arecanut and its by- product, especially medicinal values should be proved with documents by research. At present so many reputed institutions have conducted research on arecanut and submitted its report to to concerned authorities also. Institutions like ICAR, CFTRI, Mysore, University of agricultural science, Bangalore, the central health department with Indian council of medical research, Indian institute of public health, Tata memorial hospital. AIIMS scientist conducted a number of research on arecanut in Ghaziyabad government laboratory and submitted the report stating that arecanut does not contain any harmful chemicals, and other Universities are also working on this aspect.

17. Do you feel negative notions of arecanut and its by- products should be cleared in the society:

100% of our respondents opine that a false propaganda is going on arecanut and its by-products by unknown identities. It has created some negative notions on arecanut and its by- products. In the interest of the arecanut, arecanut growers and all its stakeholders negative notions on arecanut should be cleared in the society, as much early as possible.

18. Do you opine arecanut related co-operative societies are working in favor of arecanut growers?:

100% of our respondents opine that arecanut related cooperative societies are working for the welfare of the arecanut growers, since several decades. Hundreds of arecanut related cooperative societies are working in India. Mainly in Karnataka state, Mamcos, Campco, TSS Sirsi, Tumcos, Dhamcos, Kadamba marketing, Apcos, TMS, Kisan Sanga, Kram, Kodachadhri, Sayadhri and other cooperative societies.

19. Do you opine consumption of arecanut and its by- products leads to diseases:

100% of our respondents opine that consumption of arecanut and its by- products will not lead to any diseases. So many sections of medicine like Ayurveda, homeopathy, and other sections has clearly mentioned arecanut and its by- products will not lead to any disease. In several Asian countries, including in India arecanut is known for its medicinal values. Arecanut has therapeutic effect on various disease conditions. Biochemical compounds in arecanut have been recently recognized as functionally active molecules, possessing wound healing, anti diabetic, antiulcer, anti bacterial, anti fungal, anti inflammatory anti allergic effects. Having all above mentioned good qualities it is health friendly.

20. Do you opine arecanut and its by- products are carcinogenic?:

100% of our respondents opine that arecanut and its by- products are not carcinogenic. It has been proved by laboratory reports and honorable high courts of Indian union also given verdict that arecanut is not harmful to health. According to several studies arecanut seed is an excellent food material with potential antioxidant properties. The main constituents of arecanut are polyphenols, fat polysaccharides, fiber and protein. There are several usefull alternative uses of arecanut also. The by-products like Tanins, fats, arecanut Hask, arecanut leaf sheath, arecanut stem and leaf

are as full in day to day life of human beings. Arecanut is known for its nutritional properties has its possess both nutritive values and medicinal values according to CFTRI, Mysore report arecanut is rich in protein, fats, calcium, phosphorus and vitamins. Its medicinal properties on the other hand, are elaborately recognized and used in Indian folk medicine, Ayurveda, Hithopadesha to Indian to Material Medica, Chinese Medical Journal, German pharmacopoeia, French Codex, current science, The Indian Journal of Pharmacy and Stockholm's Acta Pharmacology. The CPRI Kasargod monograph itself is the arecanut palm. The medicinal value of arecanut is collected from different sources.

Findings:

1. Arecanut and its by- products is consumed by human beings for its medicinal values only.
2. Arecanut is a symbol of good luck and prosperity in our tradition.
3. Consumption of arecanut and its by- products will bring social status.
4. There are some negative notions on arecanut and its by- products in some sections of society.
5. Arecanut, betel leaf, slaked lime, Chachu, clove, cardamom, are the part and parcel of Indian tradition.
6. Consumption of arecanut and its by- products will not lead to diseases.
7. Pure arecanut and its by- products are not Carcinogenic.

Suggestions:

- Promote nutritional products from arecanut having medicinal properties.
- Encourage alternative uses of arecanut.
- Plug the yield gap and promote multiple cropping system.
- The heritage of Tambula should be propagated.
- Adverse propaganda, miss information campaign on arecanut and its by- products should be stopped immediately.
- Legal intervention should be tackled in a very good manner.
- Arecanut and its by- product needs unity among arecanut growers, consumers, all stakeholders and the government.

Confirmation of Hypothesis:

By above all studies, we prove our hypothesis, consuming arecanut and its by- products have positive impacts on human health.

Conclusion:

In the view of the above facts, research findings and empirical evidences we can strongly say arecanut is useful to human health. Arecanut is the bread and butter of crores of people in India and in other Asian countries also. Arecanut is the part and parcel of Indian tradition and heritage. It is our duty to uphold the tradition and heritage of India by protecting the interest of arecanut and its by- products, stakeholders in large Universally.

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