RP-16

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## Total Tannins in Shed Coconut Buttons

Vegetable tannin materials for which there is considerable demand are in short supply in this country and the exploitation of available plant sources for the elaboration of tannins is, therefore, of considerable importance. Recent work[1] has shown that the 'Chogaru liquor' from the arecanut processing industry contains an average of 12.7 per cent tannin and work on its utilization as a source of vegetable tannin is reported to be in progress.

Shedding of buttons is a very common phenomenon in coconuts and according to Gangolly[2], 55 to 95 per cent of buttons formed in the coconut inflorescence are usually shed. The loss of production of coconuts due to the shedding of buttons on a plantation basis amounts to about 75 per cent of which 50 to 70 per cent appears to be due to normal causes.[3] The possible use of shed buttons for the manufacture of paper, hard boards etc. has been tried. Their use in the indigenous preparation of writing inks has been very well-known in this part of the country. In view of the absence of any further information on these aspects, it seems interesting to ascertain how much tannin material would be available and how far the shed buttons would serve as a tannin source. The results of preliminary experiments carried out in this connexion are reported in this note.

Total tannin content in the shed buttons was estimated by the method described in the Official Methods of Analysis of the A.O.A.C.[4] The buttons were collected fresh from the gardens of this research station and consisted of different age groups. They were sliced into pieces, mixed and composite samples taken for the analysis. A five gram sample was treated with 400 ml distilled water and boiled

for about thirty minutes. The extract was cooled, made up to 500 ml in a volumetric flask, filtered and aliquots used for the determinations. The tannin content is given in table 1 along with tannin contents of three other common 'plant tannin' sources for comparison.

Determinations of tannin contents of buttons from the first month of development of the husk, and of shell from the fifth month when the shell has definitely formed, were carried out. The mean values for the tannin content in typical assorted samples are given in table 2.

The results show that there is appreciable quantity of tannin present in the shed buttons up to the seventh/eighth month of development. After this period there is remarkable development of maturity and the value of the husk increases since this could be used for coir production. Shed buttons up to sixth/seventh month actually go to waste and these could be processed for their tannin content. From the eighth month coconuts are also consumed as tender nuts and it should be possible to utilize the husk and shell of such nuts also for similar use as these usually go to waste although their collection and transport to a suitable processing centre may be a difficult problem. The shed buttons of the coconut may thus form a fair source of tannin material. Experiments to ascertain the nature of the tannin as well as its value in leather tanning are in progress.

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TABLE 1

| Source of tannin | Percentage of tannin on dry basis expressed as gallotannic acid | |
|---|---|---|
| | Present estimation | Estimation by other workers |
| 1. Shed buttons of coconuts (assorted sampling including one to six month old buttons :) | Sample (1) 11.10<br>„ (2) 10.80<br>„ (3) 12.90 | —<br>—<br>— |
| 2. Tea leaves<br>Tea dust | 12.60<br>6.04 | 15.0 (Rockland[5])<br>7.6 (Roy and Mitra[6]) |
| 3. Myrobalans | 30.57 | 30.0 to 40.0 (Barat[7]) |
| 4. Arecanut Kernel | 41.70 | 11.4 to 26.0 (Raghvan and Baruah[8])<br>21.6 to 30.2, in rawnuts, (Wealth of India[9])<br>29.3 (Yanganarayana Iyer[10]) |

TABLE 2

| Source of tannin | Age of material in months | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Coconut husk | — | — | — | — | 11.26 | 8.78 | 9.43 | 8.31 |
| Coconut shell | — | — | — | — | 7.51 | 5.19 | 5.20 | 3.91 |
| Whole button | 12.34 | 9.72 | 11.70 | 10.68 | — | — | — | — |

1 Annual Report of the Indian Central Arecanut Committee, 1957-1958, p. 57 (The Indian Central Arecanut Committee, Kozhikode).
2 S. R. Gangolly, *Indian Coconut J.*, **6**, 60, 1953.
3 The Wealth of India, A Dictionary of Indian Raw Materials and Industrial Products, 1950. Vol. II, p. 270 (C.S.I.R. Department of Scientific Research, Government of India).
4 Official Methods of Analysis, 8th Ed, 1955, p. 241 (Association of Official Agricultural Chemists, Washington-4, D.C.)
5 L. B. Rockland, cited in Handbook of Food and Agriculture, 1955, p. 595, edited by F. C. Blanck (Reinhold Publishing Corporation, New York).
6 B. R. Roy, and S. N. Mitra, *Sci. & Cult.*, **24**, 95, 1958.
7 S. K. Barat, *J. Sci. Indust., Res.*, **13B**, 355, 1954.
8 V. Raghavan and H. K. Baruah, *Sci & Cult.*, **22**, 152, 1956.
9 The Wealth of India, A Dictionary of Indian Raw Materials and Industrial Products, 1948, Vol. I, p. 112. (C.S.I.R. Department of Scientific Research, Government of India).
10 A. K. Yagnanarayana Iyer, Field Crops of India with special reference to Mysore, 1947, p. 537 (Government Press, Bangalore).

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