Short Communication

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Studies of *Livistona chinensis* Oil

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Livistona chinensis, commonly known as chinese fan palm is an ornamental plant of the family Palmae consisting of 200 genera and more than 1500 species [1]. It is usually found in tropical countries as well as warmer parts of the temperature zone. It is a tree 20 – 40 ft tall with a uniform unbranched stem and terminal crown of large palmate compound leaves. Its olive shaped, blue green fruit is a single seeded berry containing hard stone kernel and pericap as hulls. The dried endosperm is separated into hulls and kernels.

The physico-chemical values (Table 1) were determined according to the procedure of British Standard Specification 684 [2].

The work on saponifiable and non-saponifiable of palm hull and kernel oil has been carried out for the first time in Pakistan by the application of thin layer and gas chromatography. The non-saponifiable of palm hull and kernel oil separated byTLC [3] contains hydrocarbons, alcohols and sterols (Table 2). The composition of fatty alcohols after acetylation [4] and fatty acids after methylation [5] has been determined by gas chromatography as acetates (Table 4) and methyl esters (Table 3) respectively. The oleic acid is of the highest percentage among other fatty acids in palm hull and kernel oils. These oils can be recommended for edible purposes on the basis of their fatty acid composition. The palm hull and kernel oil contain saturated fatty acids (39.76, 46.4%) and unsaturated fatty acids (60.24%, 53.6%) respectively. These contain higher percentage of oleic acid (51.67 and 31.7%) in palm hull and kernel oil respectively. Previous workers also claimed the presence of oleic acid [6] which is supproted by the present work. The higher percentage of oleic acid in the saponifiable of palm hull and kernel oil corelates with the highest percentage of oleyl alcohol. The conversion of fatty acids into fatty alcohols and vice versa of the same chain length in highest percentage is supported by theory of biosynthesis of fatty alcohol and fatty acids in nature [7]. The instrument (Beckman-IR Model 54) was used for the identification of hydrocarbons and purified alcohol acetates. Further work for the characterization of sterols and hydrocarbons may be carried out.

Table 1. Physico-chemical Characterization of Palm and Kernel Oil.

Physical constant	Palm hull	Kernel
Moisture	3.6 %	3.8 %
Oil	12.5 %	2.5 %
Non saponifiable	1.5 %	1.8 %
Free fatty acids	7.3 %	0.11 %
Saponification value	201.0	266.00
Iodine value	79.3	72.50

Table 2. Composition of Non Saponifiable of the Oil.

	R_f	Palm hull (%)	Kernel (%)
Hydrocarbons	0.65	20	25
Alcohols	0.45	47	45
Sterols	0.25	33	30

Table 3. Fatty Acid Composition of Palm Hull and Kernel Oil.

	Palm (%)	Kernel (%)
$C_{6:0}$	0.02	0.5
$C_{8:0}$	0.03	0.1
$C_{10:0}$	0.05	0.1
$C_{12:0}$	0.06	20.8
$C_{14:0}$	0.18	8.5
$C_{16:0}$	39.34	14.1
$C_{16:1}$	0.36	–
$C_{18:0}$	0.06	2.3
$C_{18:1}$	51.67	31.7
$C_{18:2}$	7.57	21.7
$C_{18:3}$	O.64	0.2
$C_{20:0}$	0.02	–

Table 4. Fatty Alcohols of Palm Hull and Kernel Oil.

Alcohols	Palm hull (%)	Kernel (%)
$C_{12:0}$	1.8	6.8
$C_{14:0}$	7.1	25.4
$C_{14:1}$	Traces	4.2
$C_{16:0}$	10.8	Traces
$C_{18:0}$	32.1	8.5
$C_{18:1}$	35.7	55.1
$C_{18:2}$	12.5	Traces

Key words: *Livistona chinensis*, Ornamental plant.

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