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Research Article

ANALYTICAL STUDY OF TUVARAKA BEEJA TAILA

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ABSTRACT

Tuvaraka [*Hydnocarpus pentandra* (Buch.-Ham.)] is one among the most trusted drugs from the treasure of Ayurveda. The oil extracted from the seeds of 'pakwa tuvaraka phala', commonly known as 'chaulmoogra oil' is mentioned as a potential healer for all types of kushtha roga - a group of skin diseases. Tuvaraka [*Hydnocarpus pentandra* (Buch.-Ham.)] widely grows in the Western Ghats. It is an evergreen deciduous tree, growing up to 15 meters or more in height. The method of oil extraction from dry seeds of Tuvaraka has well documented 'classical' references. Since 'Tuvaraka taila' is a potent healer of 'kushtha roga' (skin diseases) and very less used in the therapeutic world of Ayurveda because of its 'teekshna guna' (strong inherent properties), the further pharmaceutical, analytical and clinical studies are essential to make the 'taila' user friendly. In this regard, this article documents the 'Analytical parameters' and their results carried out on 'Tuvaraka beeja taila' with suitable discussion.

Keywords: Tuvaraka: *Hydnocarpus pentandra* (Buch.-Ham.), Tuvaraka beeja: Seeds of *Hydnocarpus pentandra* (Buch.-Ham.), Tuvaraka taila: Chaulmoogra oil, Thin Layer Chromatography (TLC), High Profile Thin Layer and Chromatography (HPTLC).

INTRODUCTION

Tuvaraka [*Hydnocarpus pentandra* (Buch.-Ham.)] is one among the most trusted drugs from the treasure of Ayurveda. The oil extracted from the seeds of 'pakwa tuvaraka phala', commonly known as 'chaulmoogra oil' is mentioned as a potential healer for all types of kushtha roga - a group of skin diseases¹. Tuvaraka [*Hydnocarpus pentandra* (Buch.-Ham.)] is an evergreen deciduous tree, widely grown in the Western Ghats up to 15 meters or more in height¹. Its well grown fruits will be globose, mammilate and tomentose with 5 to 10 cm in diameter. The seeds will be 15 to 20 in a fruit with striate, sub ovoid and obtusely angular measuring 2 to 2.5 cm long. The ripe fruits collection is usually done by the end of summer season i.e. before the rainy season begins¹. The March and April months are the ideal time for collection of ripe fruits. Once when the fruits are collected the seeds inside

- Organoleptic characteristics: Colour, Taste, Odour and Consistency
- Physico-chemical parameters: Loss on drying, Refractive index, Acid value, saponification value, Iodine value, Specific gravity and Viscosity;

are separated carefully, spread in clean wider stainless steel trays and dried under hot sun. This dry seeds are now subjected for extraction of oil. For this we find well documented 'classical' methods of oil extraction¹. In this article, the analytical study of 'Tuvaraka beeja taila' is elaborately documented and discussed. It is subjected for test of organoleptic characters, physico-chemical parameters and the TLC and HPTLC. The results of the same are documented and discussed in this report.

Analytical Study

The 100 ml of 'Tuvaraka beeja' was taken in an airtight glass bottle and tested for following analytical parameters in 'Pharmaceutical Chemistry' wing of 'S. D. M. Centre for Research in Ayurveda and Allied Sciences'.

- Chromatography: Thin Layer Chromatography (TLC), High Profile Thin Layer and Chromatography(HPTLC);

Table 1: Organoleptic Characters



Colour
Pale yellow
Odour
Not characteristic
Appearance
Oily viscous liquid
Touch
Greasy

Table 2: Results of Standardization Parameters

Parameter	Tuvaraka taila
LOD	37.18
pH	5
Viscosity at 29 ^o C	112 cp
Refractive index 29 ^o C	1.47583
Specific gravity at 29 ^o C	0.9452
Saponification value	185.15
Acid value	6.02
Iodine value	9.80
Unsaponifiable matter	0.76

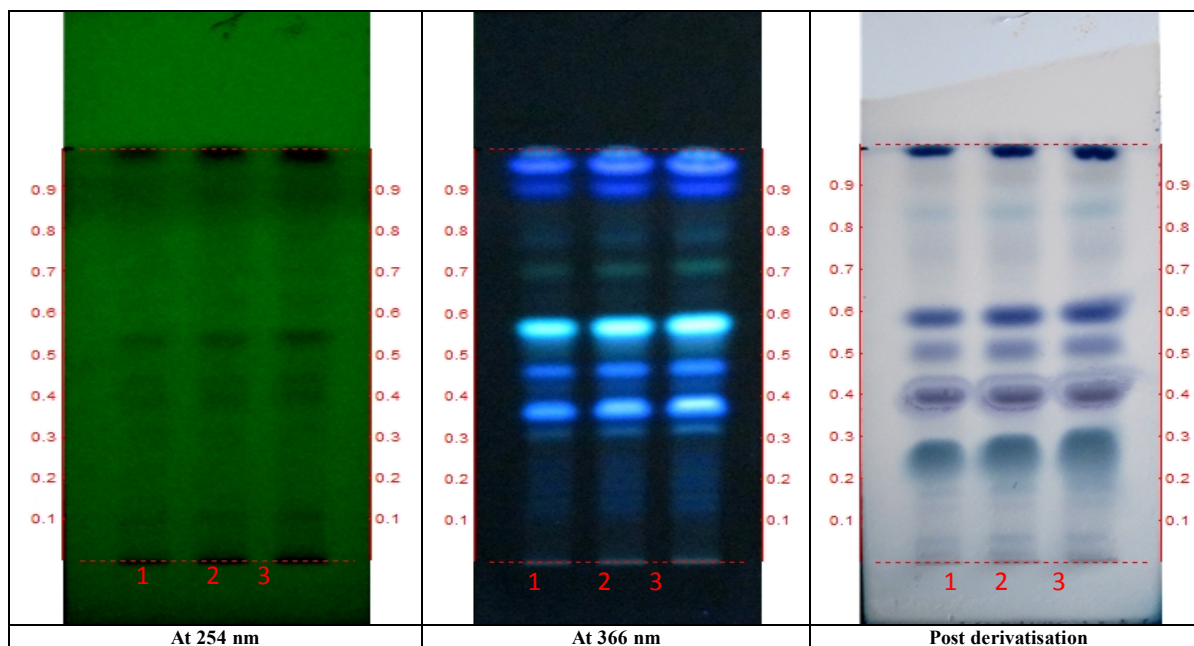


Figure 1: TLC Photodocumentation of Tuvaraka Taila

Table 3: R_f values of all the tracks

At 254 nm	At 366 nm	Post derivatisation
-	-	0.06 Blue
0.11 Green	-	-
-	0.13 F blue	0.13 Blue
-	0.16 F blue	-
-	0.18 F blue	0.18 Blue
-	0.22 F blue	-
-	-	0.27 Blue
-	0.32 F blue	-
0.40 Green	-	0.40 Purple
0.44 Green	0.44 F blue	-
-	0.47 F violet	-
-	-	0.52 Blue
0.55 Green	-	-
-	0.58 F blue	0.58 Blue
0.65 Green	-	-
0.72 Green	0.72 F blue	-
-	-	0.74 L blue
0.79 Green	0.79 F blue	-
-	-	0.85 Blue
0.88 Green	-	-
-	0.90 F violet	-
-	-	0.92 L blue
-	0.95 F violet	-

F- Fluorescent

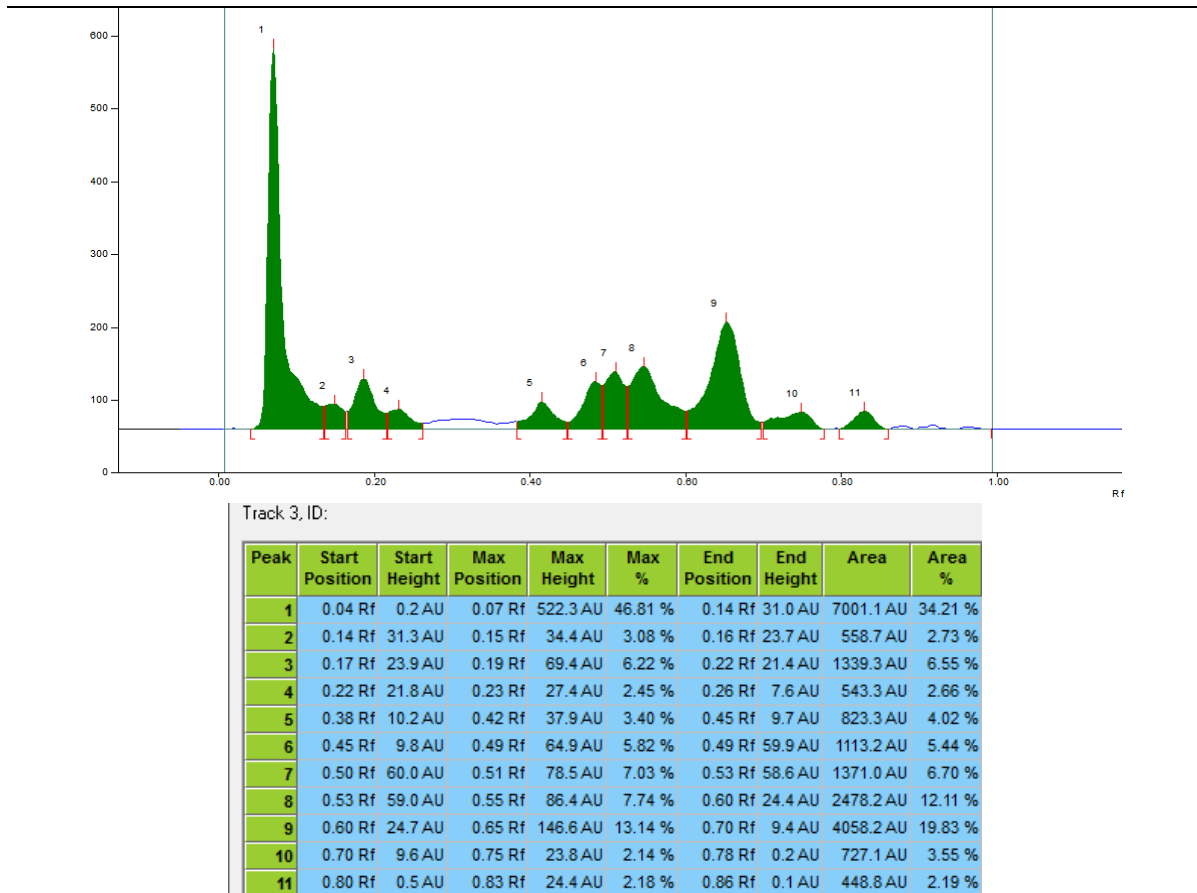


Figure 2: HPTLCPhoto documentation at 254 nm

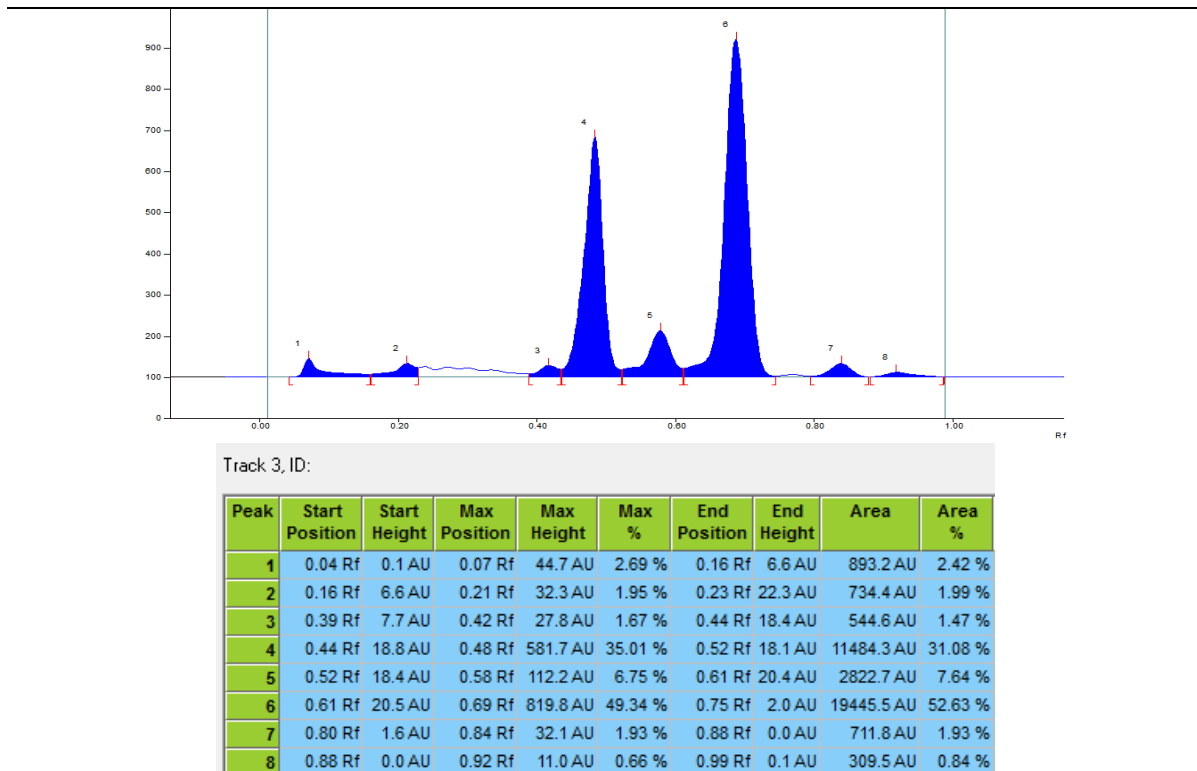


Figure 3: HPTLCPhoto documentation at 366 nm

DISCUSSION

Analytical Results

Organoleptic characteristics of 'Tugaraka taila' prepared as per classical reference are; colour- pale yellow; odour-characteristic; Appearance- oily viscous liquid; and touch-greasy. Loss on drying- 37.18; pH- 5; viscosity at 29°C- 112 cp; refractive index at 29°C- 1.47583; specific gravity at 29°C- 0.9452; saponification value- 185-15; acid value- 6.02; iodine value- 9.80; and unsaponified matter- 0.76; these are the analytical study results of 'Tugaraka taila'. The presence of high 'loss on drying' Figure is because of the classical method of oil extraction followed. Here the supernatant layers of the oil collected while boiling the paste of 'tugaraka seeds' with 64 parts of water come with some essence of the drug. Even after the oil is filtered through cloth and heated a little to remove the moisture, this drug essence remains in the oil leading to high loss on drying value. Viscosity, refractive index, specific gravity, saponification value, acid value, iodine value and unsaponified matter speak about the qualities of the oil. The tabular representation and the photo documentations of TLC and HPTLC conducted on the sample of 'Tugaraka taila' do exhibit the peaks of different constituents of this oil.

CONCLUSION

The mature fruits of 'tugaraka' were collected from two well grown trees in the herbal garden 'Rajavana' of S. D. M. College of Ayurveda, Kuthpady, Udupi, India. The pharmaceutical study was conducted in S. D. M. Ayurveda Pharmacy, Kuthpady, Udupi, India. Organoleptic characteristics of 'Tugaraka taila'; color- pale yellow; odor-

not characteristic; Appearance- oily viscous liquid; and touch- greasy. Loss on drying- 37.18; pH- 5; viscosity at 29°C- 112 cp; refractive index at 29°C- 1.47583; specific gravity at 29°C- 0.9452; saponification value- 185-15; acid value- 6.02; iodine value- 9.80; and unsaponified matter- 0.76; these are the analytical results of 'Tugaraka taila'. 'Tugaraka taila' is a potent healer of 'kushtharoga' (skin diseases)¹⁻⁵ but it is very less used therapeutically because of its 'teekshna guna'(strong inherent properties). Further pharmaceutical, analytical and clinical studies of different samples of this oil are to be encouraged to know more facts about this useful oil.

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