

EFFECT OF INSOLATION ON '777 OIL' USED FOR PSORIASIS IN SIDDHA SYSTEM OF MEDICINE

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ABSTRACT: "777 oil" is a coded drug of the Siddha system of medicine prescribed in Psoriasis. Sunlight plays an important role in the preparation of the drug as well as in the treatment of the cases.

In vitro studies carried out with the drug exposed to sunlight for four hours showed an increase in acid and iodine values. The visible spectrum was changed in shape at the wave length 480 to 580 nm. The thin layer chromatographs employing different solvent systems did not show any difference. The drug resolved in to two to three spots in these solvents and did not indicate any response of the drug to insulation.

INTRODUCTION

777 oil, a coded drug is used in the treatment of Psoriasis at Central Research Institute for Siddha, Madras (Krishnamurthy *et al* 1981). The oil is applied on the affected area of the skin and the patients are exposed to mild sunlight for a minimum period of 2 – 3 hours per day. This is repeated till a complete relief is obtained.

In the preparation of the drug, the fat soluble material of the leaves *Wrightia tinctoria* are extracted into the oil in sunlight. This method of preparation in sunlight is called "Sooriya pudam" in Siddha system of medicine. It is claimed that these fat soluble substances have Keratolytic action.

The role of sunlight both in preparation and treatment is particularly emphasised in this drug. In recent years Photochemotherapy and irradiation with ultra – violet rays are tried in the treatment of Psoriasis with notable success (Skripkin, 1981).

An *in vitro* study was undertaken to find the chemical changes taking place in the drug on exposure to sunlight. The paper deals with this evaluation.

MATERIALS AND METHODS

Exposure of 777 oil to sunlight:

About 10 ml. "777 oil" was taken in 50ml. beaker, covered with cellophane paper and

was kept in sunlight from 11.00 A.M. to 3.00 P.M. for a period of 4 hours. This oil was designated insolated. It was processed for analysis immediately after insolation.

A study was also made with the “777 oil” which was not exposed to sunlight. For the analysis oil was taken from the packed bottle and designated non – insolated.

Analytical Methods:

Specific gravity, acid value, iodine value and saponification value were determined as reported by Alam *et al* (1981). Refractive index was determined on Abbe’s refractometer.

Chromatography:

Silica gel thin-layer chromatography was carried out in the following solvent systems (Stahl, 1969).

- (i) Acetic acid : Water : 85 : 15
- (ii) Benzene : 1N Ammonium hydroxide : 90 : 10
- (iii) Chloroform : Methanol : 90 : 10

The chromatograms were developed with iodine vapours and 1 : 1 sulphuric acid – water.

Spectrum:

The drugs exposed to sunlight and not exposed to sunlight were diluted 1 : 100 in petroleum ether (40 – 60°C). The spectra were recorded against petroleum ether as blank on Baush and Lomb spectronic 21.

Results:

The colour of the “777 oil” was brown. It did not show any change in colour to naked eye on exposure to sunlight. There was also no difference in the specific gravity and refractive index. The acid value and iodine value before the exposure to sunlight were 33.70 and 7.45 respectively and after exposure to sunlight acid value was 35.10 and iodine value was 23.20 (Table – I). The high acid value may be due to formation of acidic compounds and the high iodine value may be due to formation of acidic compounds and the high iodine value may be due to production of unsaturated compounds.

The thin – layer chromatography did not show any difference in the exposed and unexposed oil to sunlight (Table – II). The acid solvent system showed two spots positive to iodine and sulphuric acid. The sulphuric acid spray also showed streaking and development of colour at the solvent front.

The drug resolved into three spots in the basic solvent system out of which one spot of R_f value 0.88 developed pink colour with sulphuric acid.

There were also three spots in the neutral solvent system (Chloroform – Methanol) which gave brown and black colour with iodine and sulphuric acid respectively. There was also colour development at the solvent front with sulphuric acid.

The visible spectra of the “777 oil” exposed and not exposed to sunlight is shown in Fig. 1. There were minor changes in the concentration of various coloured compounds at different wave lengths in the insolated oil. The spectral change was very prominent at the wave length 480 nm to 580 nm.

Some changes may also be taking place in the colourless compounds for which an ultra

– violet spectrum can give a result.

TABLE – I

Analytical values of “777 oil” before and after exposing to sunlight

Parameter	Before exposing to sunlight	After exposing to sunlight
Acid Value	33.70	35.10
Iodine Value	7.45	23.20

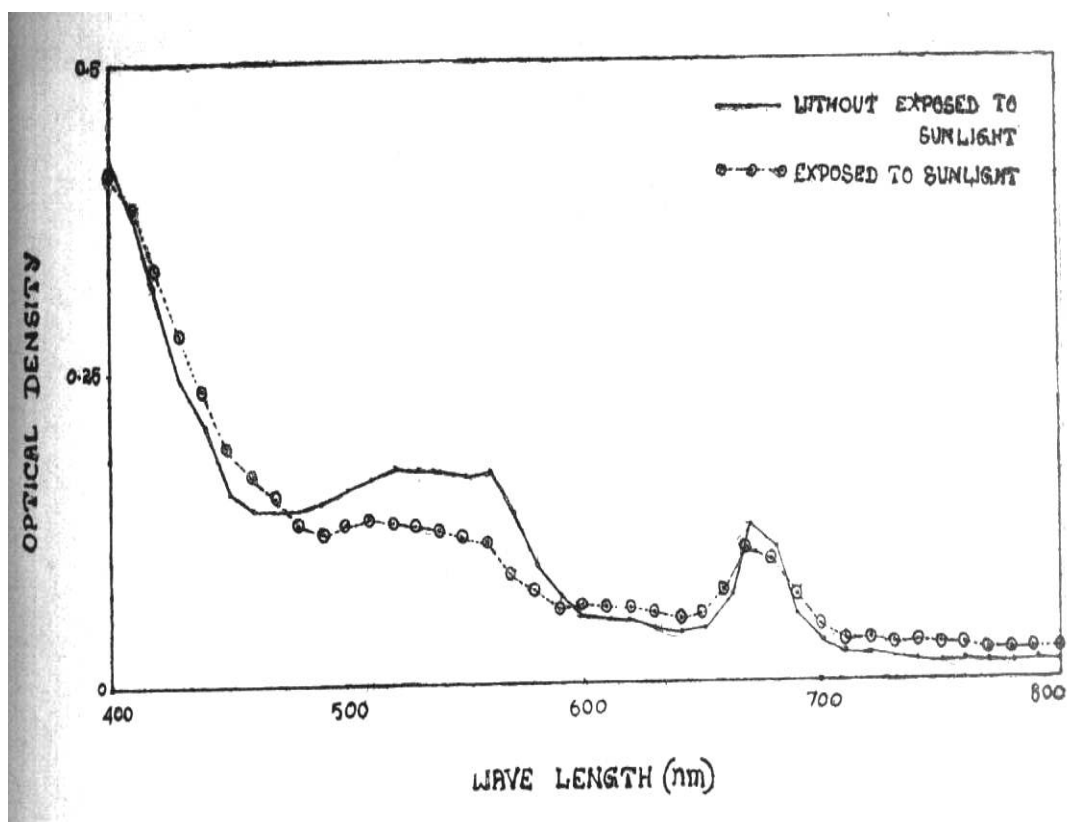


TABLE – II

Thin – layer chromatography of “777 oil” before and after exposing to sunlight

Solvent System	Not Exposed to Sunlight	Exposed to Sunlight	Colour of the spot	
	Rf value	Rf value	Iodine	Sulphuric acid
Acetic acid, Water	0.80	0.80	Brown	Black
	0.10	0.10	Brown	Black
Benzene, Ammonium hydroxide	0.88	0.88	Brown	Pink
	0.63	0.63	Brown	Brown
	0.11	0.11	Brown	Brown
Chloroform, Methanol	0.91	0.91	Brown	Black
	0.83	0.83	Brown	Black
	0.77	0.77	Brown	Black

DISCUSSION

The drug exposed to sunlight showed higher acid and iodine values indicating there by the chemical changes taking place in the drug. There was no change in the saponification value of the exposed and unexposed oil.

The visible spectrum also showed changes in the drug before and after exposure to sunlight at the wave length 480 nm to 580 nm. There was also variation in the concentration of the compound (s) at these wave lengths.

The changes observed in the analytical and spectral studies could not be confirmed by the thin layer chromatography technique. This may be either due to poor resolution of

the drug in the tested solvents or may be due to presence of the compound(S) in the non detectable quantity by this method.

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