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Anti-Solar study of ethanolic extract of leaves *Tamarindus indica* L.

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Abstract
Objective: The present study aimed at the phytochemical examination and anti-solar activity of *Tamarindus indica* L. (leaf) Ethanolic extract has more Flavonoid content based on this chemical substance photo protective activity was evaluated using UV visible spectrophotometry, where the method is diffused transmittance and the range of UV-visible about 200-400nm.
Methods: The pulverized dried *Tamarindus indica* L. was extracted with ethanol using soxhlet apparatus. Ethanolic extract were filtered & evaporated to dryness. The photo protective activity was evaluated by using UV visible spectrophotometer, where the method it is diffused transmittance and the range of UV-visible about 200-400nm.
Results: The UV scanning absorption spectra of the extract showed very strong absorption at 0.278 A with λ max at 279 nm.
Conclusion: The extract has an ability to absorb in the entire UV range.

Keywords: UV rays, *Tamarindus indica* L., flavonoid content, ethanolic extract, anti-solar

Introduction

Ultra violet radiation (UVR) exposure to skin causes skin disorder such as squamous cell aging immune depression of skin and photodermatose. In recent year herbs have been used in the medicines to treat different skin disease. When skin surface absorb ultraviolet radiations free radicals or reactive oxygen species are produced having adverse effect such as sunburns, wrinkles, lower immunity against infection premature aging and cancer hence protective and preventions are required from ultra violet radiation [1-4]. The UV radiations are categories in the three categories as such UV-C(200-280nm), UV-B(280-320nm), UV-A(320-400nm) from above three categories of UV radiation, UV-C radiation can cause severe biological damage to skin as compared to UV-B and UV-A radiation. But UV-C radiations are filtered by the ozone layer, so UV-B and UV-A radiation is currently the reason for causing skin cancer, so as to avoid this sunscreen agents are used which act as a protective agents against harmful UV radiations [5-12]. *Tamarindus indica* Linn (Caesalpiniceae) is commonly known as tamarind. It grows as a large tree and with a short massive trunk, ferny pinnate leaves, small yellow flowers and flat reddish brown pods. It is widely used as a food and medicine originated from India. The tree can grow up to 20 meters (60ft) in height and stay evergreen in regions without dry and now it is one of the most important plant resources as food material. It is cultivated mainly for the pulp in the fruit, which is used to prepare a beverage and to flavor confections curries and sauces and it is accepted as herbal medicine in parts of the world [13-20].

Fig 1: Whole Plant of *Tamarindus indica* L.

Material

The leave *Tamarindus indica* L. was collected from satara, Maharashtra, washed properly and shade dried. The dried leaves powdered and used for the extraction purpose. The specimens were identified by in the department of botany Y.C. college satara.

Extraction Method

The pulverized dried leaves *Tamarindus indica* L. were extracted with ethanol using soxhlet Apparatus. Ethanol extract were filtered & evaporated to dryness [21-23].

Photochemical Examination

The general flavonoid identification tests were performed on the extract.

Test 1: To dry extract, add 5ml of 95% ethanol, few drop of concentrated hydrochloric acid and 0.5 g of magnesium turning. The finally pink color observed. (Shinoda test)

Test 2: To a small quantity of extract, add lead acetate solution, it shows yellow colored Precipitate is formed.

Anti-solar activity

Preparation of sample

The sample preparations were carried out by 10 mg % w/v concentration dissolving into the 100 ml of distilled water (10 mg/100ml). Evaluation of anti-solar activity the UV absorption spectrum for extract was obtained in range of 200-400 nm using Double beam UV-Vis Spectrophotometer Model Shimadzu-1700.

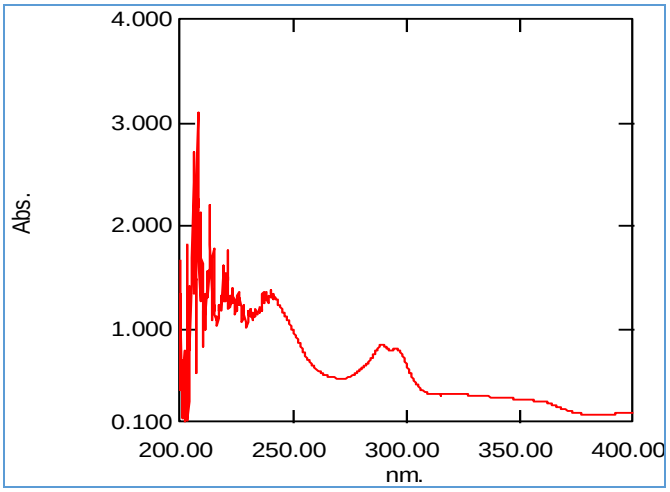

Fig 2: Following figure indicate computerized display reading of absorption spectra of the extract which is directly taken from spectrophotometer.

Results

The UV scanning absorption spectra of the extract showed very strong absorption at 0.278 A with λ max at 279 nm. The graph extract also showed a plateau in range of 300-400 nm with moderate absorbance of ~0.35-0.13

Discussion

Quantitative investigation showed the presence of flavonoids in the extract. Flavonoids are well known for their pharmacological activities. It absorbs light and helps to protect photosensitive substances in leaves. Absorption of UV radiation is the main characteristics feature of the flavonoids. The results showed strong to moderate absorption of UV radiation and this ability is due to the presence of flavonoids.

Conclusion

The ethanolic extract of leaves have ability to absorb UV radiation. The proved anti –solar activity of the plant shows its importance and prophylactic utility in anti-solar formulation. This will be a better cheaper and safe alternative to harmful chemical sunscreens that used nowadays in the industry.

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