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Anti-solar study of ethanolic extract of leaves *Moringa oleifera*

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Abstract
Objective: The present study aimed at the phytochemical examination and anti-solar activity of *Moringa oleifera* (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 *Moringa oleifera* 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 0.265 A with λ max at 268 nm.
Conclusion: The extract has an ability to absorb in the entire UV range.

Keywords: UV rays, *Moringa oleifera*, flavonoid content, ethanolic extract, anti-solar

1. 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].
'Moringa oleifera' is commonly known as Drumstick tree and is a part of the family called Moringaceae. There are 33 species of the Moringaceae family [13]. The drumfstick tree is a small fast-growing tree which is native to India. The origin of the tree is said to be from Agra and Oudh in North Western region of India to South of the Himalayan Mountains. They are cultivated in Asian, African, Middle Eastern and South American regions [14]. The most suited soil conditions are dry sandy soil where these trees grow to their full potential. But they are also propagated in semi-arid, tropical and subtropical region [15] Being drought resistant, they are able to withstand a wide range of soil and rainfall conditions and are therefore available throughout the year [16] *M. oleifera* is an excellent food source for human beings and is a multipurpose tree which can also be promoted as a fodder crop [17] Several other uses include medicine, dye, nutritional and industrial applications [18] *Moringa oleifera* seeds can be used for water treatment as it can remove up to 99% bacteria from water and purify it [19]

Fig 1: Whole Plant of *Moringa oleifera*

Material

The leave *Moringa oleifera* 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 *Moringa oleifera* L were extracted with ethanol using soxhlet Apparatus. Ethanol extract were filtered & evaporated to dryness [20-22].

Photochemical Examination

The general flavonoid identification tests were performed on the extract.

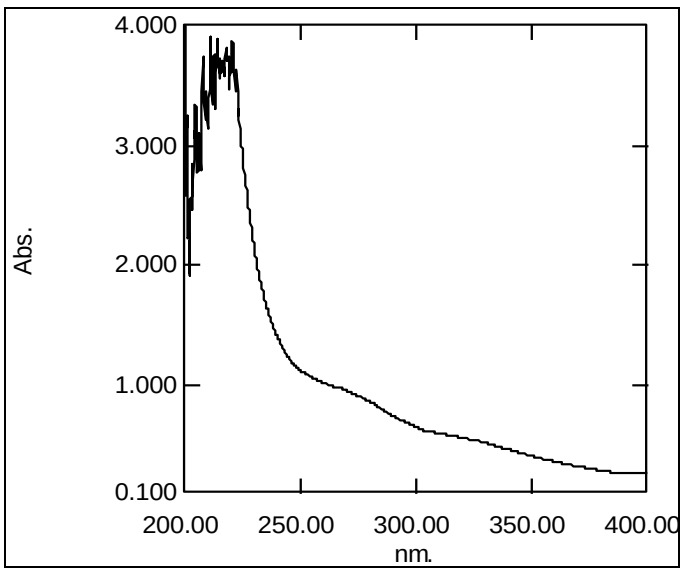
Test 1: To dry extract, add 5ml of 95% ethanol, few drop of concentrated hydrochloric acid and 0.5 g of magnesium turning. The finally pink color observed. (Shinoda test)

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.



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 0.273 A with λ max at 265 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 flovonoids in the extract. Flvonoids 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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