ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Study on In-Vitro Evaluation of Fruits of Syzygium cumini as A Natural Anti-Solar Agent

Pratik P Maske*, Sachin G Lokapure, Kiran Patil, John I Disouza

Tatyasaheb Kore College Of Pharmacy, Warananagar, Maharashtra, India

ABSTRACT

The aim of this work was to evaluate UV absorption ability of Syzygium cumini. in view of a possible application as anti-solaragent. The ethanolic extract was prepared and method was performed by UV visible spectrophotometry in range of 200- 400 nm for the plants. The interest of our study was to find the better anti solar species amongst these species. The finalize result of extract was reported as maximum absorbance at 204 nm while good absorbance at 260 nm to 300 nm. The moderate absorbance at 320-400 nm.

Keywords: UV protective, Syzygium cumini, anti solar.

Corresponding author
Email: prateekmaske@gmail.com,

ISSN: 0975-8585

INTRODUCTION

Sunlight stimulates hormone protection, and it allows synthesis of vitamins D promotes skin cell regeneration and contributes to all overseen of well being of individual. The sunlight which also stimulates melanin and the pigment that acts as the skin natural sunscreen. But excessive radiations of sunrays are unprotected and leading to painful sunburn or other skin related complication. Skin, an architecturally marvelous structure has a surface area of 1.5 to 2 m^2. It is pliable yet tough, allowing it to take constant punishment from the external environment. Sunlight is one such factor that affects the skin constantly and in the process causing damage. Skin has the intrinsic properties to protect itself from the sun, in form of melanin. [1]

Exposed sun UV light is classified into three types, by its wavelengths as UV-A, UV-B and UV-C. The dimensions of their wavelength are roughly 400-320nm for UV-A, 320-290nm forUV-B and 209-200nm for UV-C. Although it may be observed that the shorter wavelength and the lower the number, the greater the energy level of the light and the more damage it can do. [2]

Direct exposure to UV-C for a length of time would destroy the skin. Fortunately, UV-C is completely absorbed by gases in the atmospheres before it reaches the ground. In any time the longer wavelength of UV-B and UV-A pass right through the atmosphere. The molecules in sunscreen absorb most of UV-Band prevent it from reaching the skin just as the molecules of the atmospheres absorbs UV-C and prevent it from reaching the ground. [2]

Syzygium cumini (L.) Skeels (synonym Eugenia jambolana), popularly known as “jambolao”, belonging to Myrtaceae family is one of the most commonly medicinal plants used to treat diabetes mellitus in Brazil.[3] Different parts of this plant, such as seeds, bark, fruit, and leaves have been used in traditional medicine as a remedy for diabetes mellitus in many countries. [4,5]The leaves are also used to strengthen the teeth and gums, to treat leucorrhoea, stomachalgia, fever, gastropathy, strangury, dermopathy constipation, and to inhibit blood discharges in the faeces. [6,7]

Various herbal formulation and chemicals are available to block various ranges of UV rays and always prevent all types of skin from various damages. Our study is to find out such fruits that are widely used as sunscreen from ancient time.

MATERIALS AND METHOD

Syzygium cumini fruit were freshly obtained from nursery at warananagar; and they were botanical authenticated at Dept. of botany Yashwantrao Chavan Science College Warananagar. The fruits are collected, cleaned by distilled water, cut into small pieces and dried by circulating cool air. A 1kg powered fruit were extracted with 150ml of 90% ethanol by maceration. The extracts were evaporated to dryness on steam bath. The general flavonoids identification test was performed on the extract. [8]

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 colour observed. (Shinoda test)

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

EXPERIMENTAL WORK:

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). The UV absorption spectrum for the extract was obtained in ranges of 200-400 nm using double beam UV-Vis Spectrophotometer model Shimadzu-1700.

The figure 1 indicates scanning absorption spectra of the extract in given range and figure 2 indicate digital monitor display reading of absorption spectra of the extract which is directly taken from spectrophotometer.

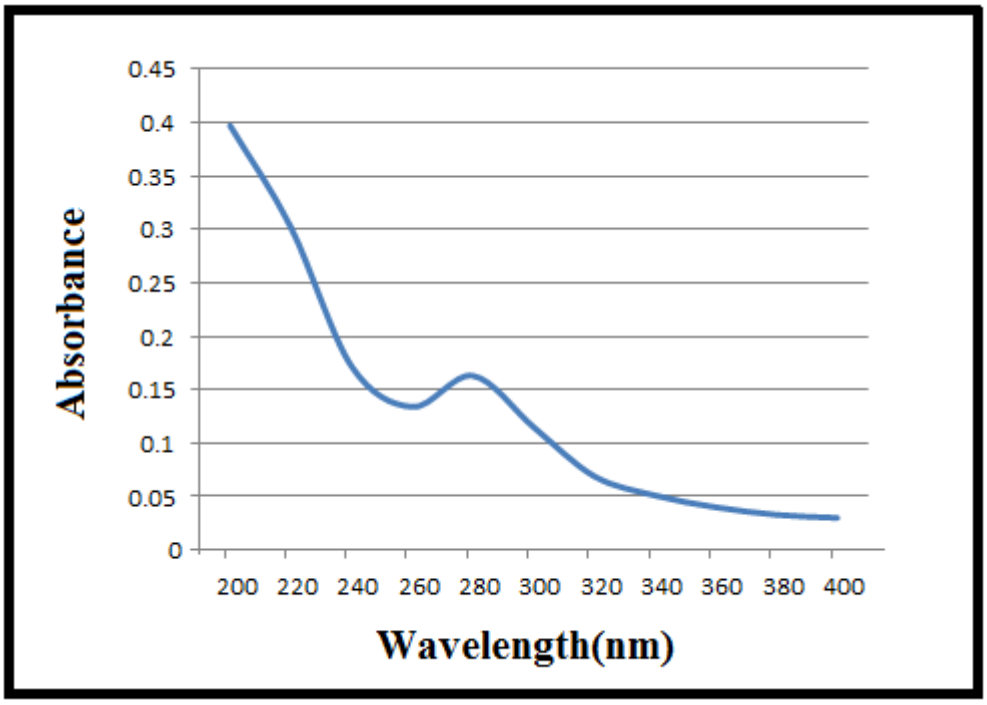

Figure 1: scanning indicates absorption spectra of the extract

ISSN: 0975-8585

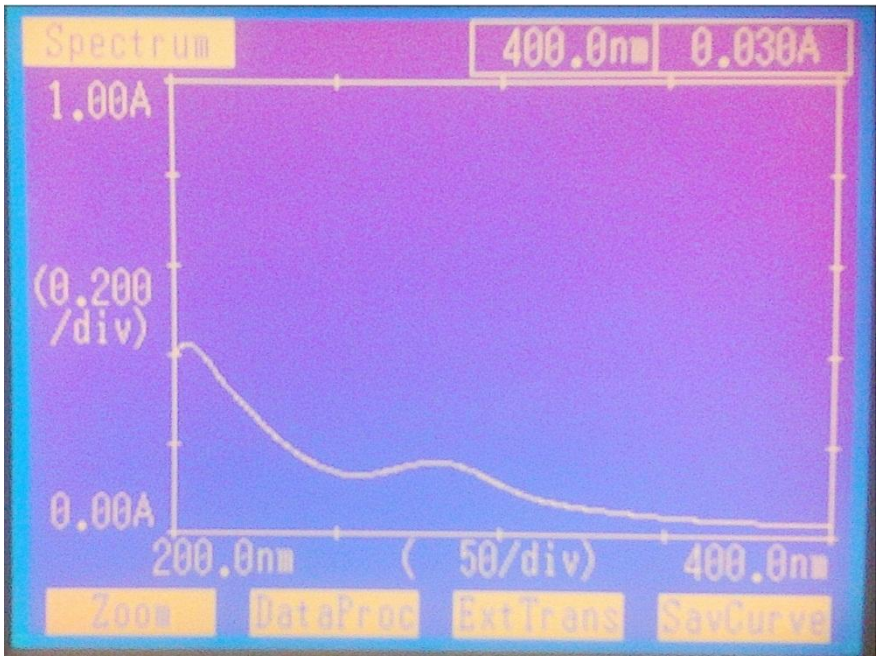

Figure 2: Digital monitor display reading of absorption spectra of the extract

RESULTS

The UV scanning absorption spectra of the extract showed very strong absorption (0.42) with λ_{max} at 204nm and λ_{max} at 280nm with absorbance of ~0.3. The graph if extract also showed a plateau in range of 320-400 nm with moderate absorbance of ~0.04 -0.039.

DISCUSSION

The result obtained were showed the ability of extract to absorb UV radiation and hence proved its UV protection ability. The extract showed a prominent absorbance at 200-260nm, while good absorbance at range of 260-300nm and moderate absorbance was reported at range of 320-400nm.

Qualitatively investigation indicates that presence of flavonoids in the extract. This flavonoids are colored compound pigment found in various leaves and flower amongst the natural source. They are well known for their attractive colours and pharmacological activities, it absorbs light and helps to protect as photosensitive substances in the flower and leaves. Thus it play key role in defense mechanisms in plant. The absorption of UV radiation is a main characteristic for identification of flavonoids in natural source. Due to presence of these flavonoids the result showed strong to moderate absorbance of UV radiation along the whole ranges. The present study is essential for collection of similar data for different plant and there flowers, as well as other parts. This proved activity of plant showed its importance and

prophylactic utility in anti- solar formulation. This will be a better, cheaper and safe alternative to harmful chemical sunscreens that used now a day in the industry.

ACKNOWLEDGEMENT

We are also thankful to the Principal Prof Dr. J. I. Disouza and Management of Tatyasaheb Kore college of Pharmacy, Warananagar for providing the necessary facilities to carry out this work.

REFERENCES

[1] Lu H, Edwards C, Gaskell S, Pearse A, Marks R. Br J Dermatol 1996; 135:263-7.
[2] Saraf S, Ashawat M. Planta indica 2005; 1:26-7.
[3] Teixeira CC, Rava CA, Silva PM, Melchior R, Argenta R, Anselmi F, Almeida CRC, Fuchs FD. J Etnopharmacol 2000; 71:343-347.
[4] Rahman AU, Zaman K. J Ethnopharmacol 1989; 26:1-55.
[5] Teixeira CC, Pinto LP, Kessler FHP, Knijnik L, Pinto CP, Gastaldo GJ, Fuchs FD. J Ethnopharmacol 1997; 56:209-213.
[6] Warrier PK, Nambiar VPK, Ramankutty C. Indian Medicinal Plants. Orient Longman Ltd. Hyderabad 1996; 225-228.
[7] Bhandary MJ, Chandrashekar KR, Kaveriappa KM. J Ethnopharmacol 1995; 47:149-158.
[8] Khandelwal KR. Practical pharmacognocy. Pune: Nirali Prakashan 2004; 12th ed.