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Pharmaconostical invesigation on *Trianthema portulacastrum* Linn stem [Red variety]

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ABSTRACT

The present study deals with the pharmacognostical investigation on *Trianthema portulacastrum* Linn stem [Red Variety]. Some of the diagnostic characters of the stem were the presence disintegrated pith cavity, tangentially stretched islands of phloem located within the secondary xylem called "included phloem" or "intra xylary phloem". The powder microscopical studies revealed the presence of vessel elements, which are long, narrow and cylindrical with scalariform lateral wall thickenings. Physio chemical parameters were also determined as per standard methods.

KEYWORDS

Trianthema portulacastrum;
Pharmacognostical study;
Included phloem;
Vessel elements;
Physio chemical parameters.

INTRODUCTION

Trianthema portulacastrum Linn [Syn: T.monogyna] Red variety belonging to family Aizoceae is a prostrate, branched glabrous or papillose, succulent, annual herb found almost throughout India as a weed[1]. It is a native of tropical America which is now naturalized throughout India as a weed in fallow rice fields, river beds, waste lands, railway tracks, common flood and frost throughout the year[2]. Two forms are reported to occur in this, a red coloured variety, in which the stem, Leaf margin and flowers are red; and a green coloured variety, which has a green stem and white flowers[3]. Ethnomedical importance of the plant reveals that the plant is bitter hot, analgesic, stomachic, and laxative, cures "Kapha" bronchitis, heart diseases, diseases of the blood, anemia, inflammations, "Vata", piles and ascites[4]. Decoction of the stem is a vermifuge, useful in rheumatism and claimed to be an antidotal in alcoholic poison[2].

MATERIALS AND METHODS

Fresh samples of *T.portulacastrum* were collected from the forests of Chennai during the month of October and authenticated by Botanical Survey of India, Coimbatore. Few samples of the drug were stored in FAA (Formalin-5ml + Acetic acid-5ml + 70% ethyl alcohol-90ml) and remaining was powdered and stored in air-tight container. After 24 hrs of fixing, the specimens were dehydrated with graded series of tertiary-butyl alcohol[5]. Infiltration of the specimen was carried by gradual addition of paraffin wax (m.p. 58 to 60°C) until tertiary- butyl alcohol solution attained super saturation. The specimens were cast into paraffin blocks. The paraffin embedded specimens were sectioned with

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TABLE 1: Physio chemical parameters of *Trianthema portulacastrum* stem

S.no	Parameter	Value
1.	Acid soluble ash	17.39%
2.	Acid insoluble ash	01.56%
3.	Sulphated ash	20.13%
4.	Total ash	18.96%
5.	Loss on drying	06.89%
6.	Alcohol soluble extractive	06.084
7.	Water soluble extractive	04.053

TABLE 2: Fluorescence analysis on *Trianthema portulacastrum* stem

Extract	Day light	Short UV (254 nm)	Long UV (365 nm)
Petroleum ether	Dark green	Emerald green	Emerald green
Chloroform	Dark green	Emerald green	Emerald green
Ethanol	Dark green	Emerald green	Emerald green

the help of Rotary Microtome by the customary procedure[6]. The sections were stained with Toluidine blue, a polychromatic stain[7]. Powdered materials were cleared with Sodium hydroxide and mounted in glycerine medium after staining. Different cell components were studied and measured. For normal observations bright field was used and for the study of crystals, starch grains and lignified cells polarized field was employed. Descriptive terms of the anatomical features were used as in the standard anatomy books[8]. Physio chemical parameters like Ash values[9], Loss on drying[10], Extractive values[11] and Fluorescence analysis were carried out and the results were tabulated.

RESULTS AND DISCUSSION

The stem is circular in cross-sectional view with even surface. The epidermis is thin and the cells are narrowly rectangular. The cortex consists of large, circular, thin walled parenchyma cells with minute intercellular spaces. The pith cells are parenchymatous and are disintegrated forming a wide pith cavity. The vascular cylinder consists of narrow zone of secondary growth with primary xylem located at several places. The primary xylem consists of 6 to 8 radial multiples of xylem elements. Secondary xylem is a thin cylinder consisting of scanty vessels, thin walled fibres and small nests of phloem located on the outer periphery of the xylem. The outer phloem is considered to be the normal secondary phloem found in all normal type of secondary growth. Apart from the outer normal phloem, there are small tangentially stretched islands of phloem located within the secondary xylem cylinder. This type of phloem is called "included phloem" or "inter xylary phloem". The vessels of secondary xylem are angular in cross-sectional view and fairly thick walled. The powder microscopical studies revealed the presence of vessel elements, which are long, narrow, and cylindrical with scalariform lateral wall thickenings.

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