Abstract

The objective of present study is to evaluate the morphological, microscopical, physicochemical phytochemical & pharmacological properties of *Prunus persica* L. & *Trichosanthes dioica* R. Microscopical studies of the leaf of *P. persica* confirmed the presence of polygonal epidermal cells with cuticle and anomocytic stomata, bicollateral vascular bundle, Prismatic shape calcium oxalate crystal, non lignified multi-cellular trichomes. Mesophyll with 2-3 layered palisade cells. The study also represents the fingerprint profile of *P. persica* using TLC and high performance thin layer chromatography (HPTLC) technique. Preliminary phytochemical screening was done then TLC and HPTLC studies were carried out. Some of the meticulous studies on *p. persica* have been authenticated its traditional medicinal use. So the drug development from this plant through rational approach has wide scope in future. The present studies have also showed anthelmintic activity of different extracts of *P. persica* leaves. *Pheretima posthuma* (annelids) and *Ascaridia galli* (nematodes) were used to perform experiments for anthelmintic activity. Piperazine citrate was used as a standard. The results demonstrated that the treatment with *P. persica* significantly (p<0.05 p<0.01) with dose-dependently paralyzed and killed the both A. galli and earthworms. Ethanol and ethyl acetate extracts have showed the comparable anthelmintic activity at the highest concentration (60 mg/ml) to the well-known anthelmintic agent piperazine citrate against *A. galli*. The ethanolic and ethyl acetate extracts exhibited the maximum potency, i.e. shortest paralysis and lethal times. The potency was not more than the reference drug, piperazine citrate but comparable to it at 60 mg/ml concentrations in both test worms.
Trichosanthes dioica is an easily available common plant. Apart from old traditional texts, like Charaka Samhita mentioned the protective role of T. dioica on important body organs like liver, spleen, heart etc, many of which are now scientifically proven. From the literature review it can be perceive that T. dioica may play a significant role in developing formulations for geriatric care as it is having almost all the properties of pharmaceutical care designed for the elderly i.e. antioxidant property, antidiabetic property, cholesterol lowering, & hepatoprotective etc. T. dioica seeds are mentioned in various traditional texts as a drug used for vermicidal anthelmintic, insecticidal, sedative, diuretic, demulcent, and expectorant purpose ethnopharmacologically. The present studies have showed anthelmintic activity of different extracts of T. dioica seeds. Annelids, Pheretima posthuma and nematodes, Ascaridia galli were used to carry out experiments for anthelmintic activity. Piperazine citrate was used as a standard. Time required for paralysis and death (lethal time) of worms were noted for each sample of T. dioica extracts and standard. The results demonstrated that treatment with T. dioica seeds extract significantly (P<0.05 - P<0.01) paralyzed and killed both of the worms, A. galli and earthworms. The activity was found to be increased with dose. Ethanol and ethyl acetate extracts activity at 60 mg/ml concentration were comparable to the well known anthelmintic agent Piperazine citrate (10 mg/ml). The use of the seeds of T. dioica as an anthelmintic has been confirmed. The microscopical studies of T. dioica seeds have showed mucilaginous epidermis made up of long thin trichomes, Innermost layer of parenchyma cells and sclerotic endodermal layer. Testa is 17-23 cells thick on the sides on the seeds. Exotesta: a layer shortly columnar pulpy cells, much elongate on the sides of micropyle thin walled but with fine fibrillar thickenings (not lignified) on the radial and inner wall, the outer wall thickened and slightly lignified, first filled with starch grains. This layer is 7-11 cells thick on the sides of seeds but more thick at the obtuse edges, composed mainly cuboidal
substellate cells. Endotesta: 8-10 cells thick, thin walled without starch, aerenchymatous, substellate, the outer cell layers composed of lignified smaller cells. Tegmen disappeared except for a trace at the micropyle. Nucellus persistent as 2-4 cell layers with thick external cuticle. Physico-chemical studies of *T. dioica* seeds have set the some standard i.e. ether soluble extractive value 16.15% w/w, alcohol soluble extractive value 10.11% w/w, water soluble extractive value 9.22% w/w, total ash value 6.21% w/w, acid insoluble ash value 1.32% w/w, water soluble ash value 4.29% & loss on drying 24.33% w/w etc. were found out. Preliminary phytochemical screening was done then TLC and HPTLC studies were carried out. TLC & HPTLC studies separated the constituents of definite Rf value of the spots having highest concentration and revealed the presence particular numbers of phytoconstituents in the different extracts. All these findings will be useful towards establishing pharmacognostic standards on identification, purity, quality and classification of the plant, which is gaining relevance in plant drug research, the identification and preparation of monograph of plant.

**KEYWORDS:** *Prunus persica, Trichosanthes dioica,* Phytochemical, Pharmacognostic, Anthelmintic, *Ascaridia galli,* Piperazine citrate, Nematodes.