ABSTRACT:

The leaves and bark of *P. aculeata* L is also called as vilayati kikar, belonging to the family Fabaceae and the root of *R. aquatica* L is also called pashanbed belonging to the family Boraginaceae. All parts of *P. aculeata* Linn are reported to be used as antipyretic; leaves are considered as diaphoretic and abortifacient and *P. aculeata* contain various flavonoids, flavonols and flavones and reported anti-oxidant, anti-inflammatory, analgesic activity on leaves and bark parts of *P. aculeata* but no scientific reports are available for the same, hence to give a scientific back ground to the above traditional claim this work has been taken up. *R. aquatica* reported that the plant is a mandatory component of many ayurvedic drug preparations and is an important traditional medicine for kidney and bladder stones. The root tuber is used in fever and reported anti-oxidant, anti-inflammatory activity on this plant but no scientific reports are available for the same, hence to give a scientific back ground to the above traditional claim and papers so this work has been taken up.

The transverse section features of the leaves of *P. aculeata* L are the presence of abaxial epidermis, adaxial epidermis, adaxial palisade, abaxial palisade, vascular bundles with the microscopically characters of the powder include paracytic stomata, unicellular uniseriate warty covering trichomes which are straight or slightly bent, crystal sheath and vessel segment and Physico-chemical characteristics. The presence of alkaloids, flavonoids, tannins, steroids and lactones was confirmed during preliminary phytochemical screening.

The T.S features of the bark of *P. aculeata* L are the presence of Cork, phellogen, phelloderm, medullary rays, sclerides, Vessels etc with some of the powder diagnostic features of the bark are the presence of fibers associated with vessels, Center one sclereid, Starch grains and Tracheids and physico-chemical characteristics. The presence of alkaloids, flavonoids, tannins, steroids and lactones was confirmed during preliminary phytochemical screening.

The T.S features of the root of *R. aquatica* L contains epidermis, cork cells, cortex, phloem, xylem parenchyma, protoxylem, metaxylem, calcium oxalate crystal, xylem vessel, medullary rays, pith with some of the powder diagnostic features of the presence cork cells, stone cell, xylem vessels. The presence of steroids, alkaloids carbohydrates, flavonoids, Tannins was confirmed during preliminary phytochemical screening.
The present study was aimed at evaluation of the analgesic, anti-inflammatory, antipyretic and antioxidant activity of total alcoholic and aqueous extract of leaves and bark of *P. aculeata* L and *R. aquatica* L. root in mice, rats and in vitro methods. The drug was found to be non toxic even at 2000 mg/kg body weight. The total alcoholic extracts of *P. aculeata* L leaves, bark and *R. aquatica* L. root at a dose of 200 mg/kg body weight has shown significant analgesic, antipyretic and anti-inflammatory activity as compared to aqueous extract. The result of hot plate indicated that the total alcoholic extract shows a significant increase reaction time comparable to the reference drug Pentazocin. The tail immersion and hot plate test reveal that this plant has high analgesic activity. This is because some form of error may be introduced with the animal handing while the test is being elicited. Both test show highest degree of analgesia in alcoholic extract of *P. aculeata* bark compared to alcoholic and aqueous extract of leaves of *P. aculeata* Linn and *R. aquatica* L. root. The alcoholic extract of *P. aculeata* L bark at the a dose of 200 mg/kg body weight has shown highest significant antipyretic activity as compared to alcoholic and aqueous extract of leaves of *P. aculeata* Linn and *R. aquatica* L. root; it has shown significant fall in body temperature up to 4h following its admistration by yeast induce pyrexia method. The response was comparable to that antipyretic activity of paracetamol a standard antipyretic drug.

Alcoholic extract of *P. aculeata* bark most significantly inhibited Carrageenin-induced paw oedema as compared to alcoholic and aqueous extract of leaves of *P. aculeata* Linn and *R. aquatica* L. root; it may be due to possible inhibition of lipooxygenase pathway. Alcoholic extract of *P. aculeata* bark most significantly inhibition of free radical scavenging as compared to alcoholic and aqueous extract of leaves of *P. aculeata* Linn and *R. aquatica* L. root by in-vitro method of DPPH free radical scavenging activity.

Therefore, the overall results obtained suggested that all the selected plants were found to contain flavonoids as tested in the preliminary phytochemical screening. Flavonoids have been linked with analgesic, anti-inflammatory, antipyretic activity and antioxidant activity. The alcoholic extracts and aqueous extracts of leaves and bark of *P. aculeata* and root of *R. aquatica* might provide some justification for the folklore use in the treatment of inflammation, fever, pain and scavengers of free radicals.