Preliminary evaluation of bioactive compounds of some wound healing plants.

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ABSTRACT

The wound healing is common problem from ancient to till now. Many medicinal plant constituent having potential to cure it. Number of phytochemicals can easily isolated from plant part but awareness is very less. In the present investigation, preliminary phytochemical screening of plant species i.e. Clerodendron sp., Cissus quadrangularis Linn, Clerodendron serratum spreng, Clerodendron infortunatum spreng, Cymbopogan citratus stpf., used for various phytochemicals such as Amino acids, Proteins, Carbohydrates, Phenols, Tannins, steroids etc.

Key words- Phytochemical screening, Organoleptic characteristics, Ethanolic and Acetone extracts.

INTRODUCTION

According to report of World Health Organization (WHO), medicinal plants would be the best source to obtain variety of drugs. Muthuselvam (2009) revealed that the 80% of individuals from developed countries use traditional medicines, which has compounds derived from medicinal plants. Therefore the evaluation of phytochemical properties is very necessary.

Abbasi et al. (2010) Noted that, wound may be defined as a disruption and loss of functional activity of living tissue. Wound healing involves continuous cell–cell and cell–matrix interactions that allow the process to proceed in three overlapping phases viz., inflammation cellular proliferation and remodeling (Kokane et al., 2009). Dewick (1996) pointed out that the plant drug has doesn’t side effect and it maximum sources in nature. The plants which have been selected for medicinal use over thousands of years constitute the most obvious choice of examining the current search for therapeutically effective new drugs such as anticancer drugs. Edoga et al. (2005) and Mann (1978) studied that due to some organic compound present in the medicinal plants such as secondary metabolite which are more helpful in physiological activity of human body. Saxena et al. (2012) have suggested that the useful application of the plant in recent medicine, physico-chemical and phytochemical standardization is very essential, therefore the medicinal value of the plant may be used properly and scientifically provide to the larger populations of the world. Therefore, in the present study try to find out significant value of plant species.
MATERIALS AND METHODS

Collection of Plant materials
For the investigation of plants species i.e. Clerodendron sp., Cissus quadrangularis Linn, Clerodendron serratum spreng, Clerodendron infortunatum spreng, Cymbopogan citratus stpf., were collected from nearby the Nagpur region during the flowering period and the authenticated have been done at PGTD Botany RTM, Nagpur University Nagpur. Fresh plant materials were washed with tap and then with distilled water, shade dried and then fine powder and stored in airsealed bottles (Abbasi et al., 2010)

Preparation of Extracts
The solvent extractions, 25 g of air-dried powder (In a Thimble) of the medicinal plants were taken separately with 150 ml of organic solvents (Ethanol and Acetone) and were taken into the soxhlet apparatus upto 48 hrs till the green colour of the plant material disappeared. After which the extracts were collected and stored at 4oC in airsealed bottles and were tested for the presence of various phytocompounds. (Amarsingham et.al. 1964; Das and Bhattacharjee, 1970; Harborne, 1984, 1998)

Organoleptic Evaluation
Organoleptic evaluation refers to evaluation of the whole plant powder of the species by Appearance, colour, odour, taste, etc. The organoleptic characters of the sample were evaluated based on the method described by Siddiqui et al., 1995; Siddiqui and Hakim, 1995; Kokate et al., 2006).

Preliminary Phytochemical Screening
The preliminary phytochemical screening of the ethanol and Acetone extracts of whole plant powder of plant species were carried out using standard laboratory procedures, to detect the presence of different secondary metabolites (phytochemical constituents) such as Aminoacids, Carbohydrates, alkaloids, flavonoids, saponins, tannins, steroid, glycosides, phenols, triterpenoids, protein, (Saxena et al. 2012, Kokate et al 1995, Gupta et al. 2008) (Amarsingh et.al. 1964; Das and Bhattacharjee, 1970; Gibbs, 1974; Harborne, 1984, 1998)

RESULTS AND DISCUSSION
The Organoleptic characters of all the plant species course powder are tabulated as Table No. 1. The Preliminary phytochemical screening for various functional groups is tabulated as Table No. 2.

In the present study shown (Table no.1) that, under normal condition of light, the organoleptic character of Clerodendron sp., powder color is dark green in color with pungent smell and bitter in taste. Cissus quadrangularis has yellow green color, punget smell with pungent smell and bitter in taste.

Table.1 - Organoleptic characters

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Plant</th>
<th>Appearance</th>
<th>Colour</th>
<th>Smell</th>
<th>Taste</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clerodendron sp.</td>
<td>Powder</td>
<td>Dark green</td>
<td>Odour</td>
<td>Bitter</td>
</tr>
<tr>
<td>2</td>
<td>Cissus quadrangularis L.</td>
<td>Powder</td>
<td>yellow green</td>
<td>Pungent</td>
<td>Astringent</td>
</tr>
<tr>
<td>3</td>
<td>Clerodendron serratum spreng</td>
<td>Powder</td>
<td>Olive green</td>
<td>Odour</td>
<td>Bitter</td>
</tr>
<tr>
<td>4</td>
<td>Clerodendron infortunatum spreng</td>
<td>Powder</td>
<td>Olive green</td>
<td>Odour</td>
<td>Bitter</td>
</tr>
<tr>
<td>5</td>
<td>Cymbopogon stapf</td>
<td>Powder</td>
<td>Light green</td>
<td>Odour</td>
<td>Lemon test</td>
</tr>
</tbody>
</table>

Table.2- Preliminary phytochemical analysis

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Compounds</th>
<th>Clerodendron sp.</th>
<th>Cissus quadrangularis</th>
<th>Clerodendron serratum</th>
<th>Clerodendron infortunatum</th>
<th>Cymbopogon sp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amino acids</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>2</td>
<td>Proteins</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3</td>
<td>Carbohydrate</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Phenol</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>5</td>
<td>Flavonoid</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>Tannin</td>
<td>++</td>
<td>++</td>
<td>NA</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>Alkaloid</td>
<td>+</td>
<td>+</td>
<td>NA</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>Glycoside</td>
<td>+</td>
<td>+</td>
<td>NA</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>9</td>
<td>Triterpenoid</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>10</td>
<td>Saponin</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>11</td>
<td>Steroid</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
as astringent taste. The species *Clerodendron serratum* and *infortunatum* olive green in color pungent smell with bitter in taste. The *Cymbopogon citratus* powder is light green in color it has smell is lemon type.

Preliminary phytochemical screening of *Clerodendron sp.*, *Cissus quadrangularis* Linn, *Clerodendron serratum*, *Clerodendron infortunatum*, *Cymbopogon citratus* presence of Amino acids, phenols, tannin, saponins, steroids, triterpenoids, proteins, carbohydrates and glycosides as shown in Table 2. The present study revealed that the *Clerodendron sp.* and *Cymbopogon* has maximum content of compound but *Cissus quadrangularis* has also average range of content of compounds. Our comparative statement of result has revealed that the agree with the presence reference by (Sharma and Gupta, 2013).

Phytochemical analysis of the crude extract revealed the presence of tannins among other chemical constituents contained within them. Tannins were shown to produce anthelmintic activities. It is earlier reported recent by Narayana et al. (2001). From the phytochemical analysis *Cissus quadrangularis* Linn root contains Phenols, Flavanoids, tannins, which may be responsible for anthelmintic activity.
CONCLUSION

The Phytochemical value of plant species reported in this paper is very important. With these species need to testing their living activities against organisms. For this require the establish of scientific ground for apply active compounds. Present investigation provides baseline information to screen out biological activities of these valuable plants in order to develop new wound healing and antiseptic medicines from plant origin.

REFERENCES


