ABSTRACT:

Agadtantra is the sixth branch of ayurveda which mainly deals with agada i.e. the medicine with antipoisonous effects. These antipoisonous drugs are prepared by combination of several drugs. Various medicinal plants are described in ayurveda which are used in the treatment of poisoning (Visha), one of them is aparajita. In bhavprakash nighantu and kaiyadev nighantu it is mentioned as ‘vishapaha’ which alleviates toxins. In sushruta samhita it is included in arkaadi gana which is also vishapaha i.e. which eliminates poison. Pharmacological activities of aparajita like nephroprotective, diuretic, hepatoprotective, anti inflammatory, antihistaminic are proved. The roots, flowers, seeds and leaves are used for medicinal purpose both internally as well as externally. This review is small attempt to explore its antipoisonous formulations and antipoisonous activity.

KEY WORDS: Aparajita, vishapaha, Antipoisonous formulation (agada).

INTRODUCTION:

Agadtantra is the sixth branch of ayurveda which mainly deals with agada i.e. the medicine with antipoisonous effects. These antipoisonous drugs are prepared by combination of several drugs. Various medicinal plants are described in ayurveda which are used in the treatment of poisoning (visha), one of them is aparajita. In bhavprakash nighantu and kaiyadev nighantu it is mentioned as ‘vishapaha’ which alleviates toxins.1,2 In sushruta samhita it is included in arkaadi gana which is also vishapaha i.e. which eliminates poison.3 Aparajita grows through out india. It is a beautiful looking plant, hence cultivated in gardens. The flowers resemble in shape to cows ear, hence the synonym gokarnika.4 Two varities, blue and white flowered are mentioned in ayurvedic texts. The roots, flowers, seeds and leaves are used for medicinal purpose both internally as well as externally.1 This review is small attempt to explore its antipoisonous formulations and antipoisonous activity.

MATERIALS AND METHODS:

All relevant information were collected from ayurveda authentic texts, electronic database search and scientific journals.

Morphology –
It is a perennial twining herb having 7 leaflets, which are elliptic and obtuse. Leaves are pinnate 5-9 foliolate. Flowers are showy, blue or white, petals are unequal, style bearded below the stigma. Fruit pods are linear and compressed. The pods are 5-7 cm long, flat with 6 to 10 seed in each pod. Seeds are 6-10 and black in colour. Plant flowers in rainy season and fruits in winter.

**Chemical Constituents** -

Root - It contain taraxerol and taraxerone.

Seed - It contain cinnamic acid and an anthoxanthin glucoside.

Seed oil - It contain palmitic, stearic, oleic, linoleic and linolenic acids.

Leaves - It contain glycosides of kaempferol and stigmas-4-ene-3, 6-dione.

Flowers - It contain delphinidin – 3, 5 – diglucoside.

**Table No. 1 Taxonomical Classification of Aparajita (Clitorea ternatea)**

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Plantae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order</td>
<td>Fabales</td>
</tr>
<tr>
<td>Family</td>
<td>Fabaceae</td>
</tr>
<tr>
<td>Genus</td>
<td>Clitoria</td>
</tr>
<tr>
<td>Species</td>
<td>C. ternatea</td>
</tr>
<tr>
<td>Botanical Name</td>
<td>Clitoria ternatea Linn.</td>
</tr>
</tbody>
</table>

**Table No. 2 Vernacular names of Aparajita (Clitorea ternatea)**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Hindi</td>
<td>Aparajita</td>
</tr>
<tr>
<td>Bengali</td>
<td>Aparajita</td>
</tr>
<tr>
<td>Gujrati</td>
<td>Kaaligaranii, Kaalikoyal</td>
</tr>
<tr>
<td>Tamil</td>
<td>Kaakkanam</td>
</tr>
<tr>
<td>Telugu</td>
<td>Dinten</td>
</tr>
<tr>
<td>Kannad</td>
<td>Shankhapushpa</td>
</tr>
<tr>
<td>Marathi</td>
<td>Gokarna</td>
</tr>
<tr>
<td>Malayalam</td>
<td>Shankapushpm</td>
</tr>
</tbody>
</table>

**Table No. 3 Pharmacological Properties of Aparajita according to Ayurveda**

<table>
<thead>
<tr>
<th>Rasa</th>
<th>Tikta, Katu, Kashaya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virya</td>
<td>Shita</td>
</tr>
<tr>
<td>Vipaka</td>
<td>Katu</td>
</tr>
<tr>
<td>Guna</td>
<td>Tikshna, Laghu</td>
</tr>
<tr>
<td>Doshakarma</td>
<td>Tridoshghna</td>
</tr>
</tbody>
</table>

**Pharmacological activity according to ayurveda** –

It is useful in the treatment of udar, kaphavikar, jwar, mutravikar, galgand, gandmala, shotha, netrarog, ummad, aamavat, kushtha, and visha vikar.

**Pharmacological Activity** –

1) Nephroprotective activity –

It is shown that the administration of ethanol extract of Clitoria ternatea has nephroprotective potential against APAP-
induced nephrotoxicity. This nephroprotective activity of clitoria ternatea might be due to the synergetic effect of chemical compounds present in them making them good sources for the production of a nephroprotective herbal medicine.  

2) Diuretic Activity –

The powdered form of dried whole root and ethanol extract were evaluated for diuretic activity and only single I.V. dose of extract produce moderate increase in urinary excretion of Na, K and decrease in Cl but no change in urine volume. Also so appreciable effect seen on oral dosing.  

3) Anti carcinogenic activity –

Clitoria ternatea extracts is well correlated with other reports from different plant extracts on cancer suppressing activity or anti carcinogenic activity.  

4) Antioxidant activity –

The plant is a rich source of phytochemicals, with high levels of phenolic compounds and antioxidant activities.  

5) Anti-epileptic activity – Methanol extract from the parts of Clitotrea ternatea was screened by using pentylenetetrazol (PTZ) and maximum electroshock (MES) – induced seizures in mice at the dose of 100 mg/kg p.o. CT significantly delayed the onset of convulsions and also delayed the duration of tonic limb extension in MES induced convulsions.  

6) Anti-microbial Activities –

The leaf was found to possess powerful antibacterial activity against E. coli and V. cholera known for causing dysentery and S. aureus, causative agent of fever. Both extracts were shown to be bactericidal in their mode of action. The leaf extract showed stronger antibacterial activity than root extract.  

7) Immunomodulatory effects –

The studies were conducted on oral administration of aqueous extract of Clitoris ternatea to alloxan induced diabetic rats for a duration of 60 days which significantly decreased the serum glucose and cholesterol levels. The total white blood cells, red blood cells, T-lymphocytes and B lymphocytes were significantly increased in treated animals, while monocytes and eosinophils showed an opposite trend. These results further indicate that these plant extracts have immunomodulatory effects that strengthen the immune system.  

8) Anxiolytic activity –

Alcoholic extract of Clitotrea ternatea orally at a dose of 460 mg/kg significantly prolonged the time taken to traverse the maze as produced by chlorpromazine in rat demonstrate significant effect on anxiety.  

9) Anti inflammatory, analgesic activity –

The anti-inflammatory analgesic from the flowers of Clitotrea ternatea Linn. Showed that it exhibited significant anti inflammatory activity at dose level 200 and 400 mg/kg body weight. While the analgesic activity was exhibited at the dose level of 400 mg/kg bodyweight.  

10) Hepatoprotective activity –

The methanol, chloroform and petroleum ether extracts of roots of blue and white flowered varities of clotorea ternatea were
found to have hepatoprotective property. This was assessed by evaluating their hepatoprotective potential against carbon tetrachloride induced hepatotoxicity in rats.  

11) Wound healing activity –

The effects on wound healing were investigated using excision, incision and dead space models in rats. Seed and root extracts significantly improved wound healing property when administered orally by gavages as well applied topically as ointment which are comparable to that of cotrimoxazole ointment. The finding of this study suggested that plant possesses effects on all three phases of wound healing, inflammatory, proliferative and remodeling phase.  

12) Antidiabetic activity –

The leaf and flower extracts of Clitorea ternatea have a hypoglycaemic effect. The extracts were effective in regulating the biochemical indices associated with diabetes mellitus.  

13) Antihistaminic activity –

Clitorea ternatea showed antihistaminic activity using clonidine and haloperidol induced catalepsy in mice.  

14) Antidepressant, tranquillizing and sedative activity –

In a study of gross behavioural effect following the administration of an alcoholic extract of clitoria ternatea aerial part in a dose range of 1-2 gm/kg in mice. The results indicate that like chlorpromazine, it possesses prominent CNS effects characterized by tranquilizing properties such as dose dependent inhibition of alertness, diminution of spontaneous motor activity and increased sedation.  

Formulations of aparajita in visha chikitsa –

A) In sthavara and jangam visha chikitsa -

Aparajita is used to prepare yavagu which is used in the treatment of sthavara and jangama visha.  

B) In Snake bite -

1. Juice of shweta aparajita along with valmika mrutika is useful in snake bite.  
2. Shweta aparajita is one of the ingredient of agad which is used in darveekar sarpa (hooded snake) bite treatment.  
3. Shweta aparajita is one of the ingredient of agad which is used in mandali sarpa bite treatment.  
5. Root powder of shweta aparajita and sinduvara along with water is beneficial in darveekar snake bite.  

C) In Rat bite -

1. Ghrita prepared with the paste and juice of shweta aparajita is beneficial in rat bite poisoning.  
2. Aparajita along with apamarga, danti, langali etc is used in treatment of rat bite.
3. Aparajita along with paste of shweta punarnava and honey is useful in the treatment of kapil mooshika (Rat)bite.29

D) In Spider bite –
1. Aparajita along with sinduvara, haridra, sarpgandha, rasna etc. are made into paste and applied in spider poisoning predominant of kapha.30
2. Nasal drops prepared from juice of fruit of aparajita is beneficial in spider bite poisoning.31
3. Agad prepared from shirish, bakuchi, surala, katabhi, jati, shweta aparajita is beneficial in spider bite poisoning.32

E) In insect bite –
1. Aparajita along with pippali, marich, apamarga etc. is used for application at bite site in bhramar visha.33
2. Fume of shweta aparajita, guggula, bhallataka, arjuna etc. destroy serpents, rats, insects and insects of clothing.34

F) In fish bite –
1. Shweta aparajita, shunthi, marich, pippali along with ghrita is used for application in fish bite poisoning.35
2. Application of powder of aparajita, bhinda, trikatu along with honey is beneficial in fish bite.36

G) In Visha Upadrav (Complication of poisoning) –
If there is excessive bleeding due to poisoning, suvarna bhasma with juice or paste of aparajita is used for treatment.37

H) In injury caused by weapon with poison -
Application of kshara prepared with aparajita, mushkaka, somtwaka, manjishta, shirish and grudhranakhi is useful in the treatment of injury caused by weapon with poison.38

Table No. 4 Antipoison formulations containing aparajita

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Anti poisonous formulation</th>
<th>Ingredients</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mahasugandhi agada</td>
<td>Shweta aparajita, shirish pushpa, sinduvar, chandana, tagar, haridra, daruharidra, kushtha etc.</td>
<td>It destroys poison of king of snake even of vasuki (Celestial serpent).39</td>
</tr>
<tr>
<td>2.</td>
<td>Amruta ghrita (Sushruta samhita)</td>
<td>Seeds of apamarga and shirish, shweta and neela aparajita, kakmachi, cow urine.</td>
<td>It is best to mitigate poison and it restores even a dead man to life.40</td>
</tr>
<tr>
<td>3.</td>
<td>Meghnaad agad</td>
<td>Tanduliyaka, kashmarya, kinihi, aparajita, matulunga, sharkara, sinduvara.</td>
<td>It is beneficial in the treatment of darveekara and rajimana snake bite.41</td>
</tr>
<tr>
<td>4.</td>
<td>Yapana agad</td>
<td>Shweta aparajita, chandan,</td>
<td>It restores the life of the</td>
</tr>
<tr>
<td></td>
<td>Ingredient</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| 5. | Suryodaya agad                               | Shweta aparajita, shriveshtaka, haridra, daruharidra, kanchanar, manhila, pippali, patala, manjistha etc. | It destroys effect of poison just as the sunrise dispels darkness.  
| 6. | Lodhradi agad                                | Lodhra, shweta aparajita, shirishpushpa, harenuka, marich, vacha etc.        | It destroys the poison of snakes, rats, wasp, jackal, dog etc.  
| 7. | Rushabhakaadi agad                           | Rushabhaka, jeevaka, bharangi, madhuka, shweta aparajita etc.               | It is useful in treatment of complications of poisoning.  
e.g. Dyspnoea, fever etc.  
| 8. | Param agad                                   | Vacha, vanshatwaka, patha, nata, shirish, aparajita etc.                    | It is useful in the treatment of insect bite.  
e.g. Vishwambhara bite  
| 9. | Amrita ghrita (Charaka samhita)              | Shweta aparajita, shirish twak, trikatu, chandan, sariva, patala etc.       | It is useful in all types of poisoning. It revives the persons almost dead due to poisoning and hanging.  

DISCUSSION –

In bhavprakash nighantu, kaiyade nighantu and sushruta samhita it is mentioned that aparajita is ‘vishapaha’ i.e. which eliminates poison. After getting entered into the body poison, vitiates all the tridosha. According to ayurvedic text, action of aparajita is tridoshghna. Hence it is effective in the treatment of poisoning.

Pharmacological activities of aparajita like nephroprotective, diuretic, hepatoprotective, anti inflammatory, antihistaminic are proved. Aparajita can be used in the treatment of nephrotoxic poisons (lead, mercury etc.) and hepatotoxic poisons (paracetamol, carbon tetrachloride etc.). Due to its diuretic activity it helps in the elimination of poison from the body.

In ayurvedic texts many formulations of aparajita are described which are beneficial in the treatment of snake bite, spider bite, rat bite, insect bite, fish bite etc. Aparajita is the ingredient of various antipoison formulations (agada) like mahasugandhi agad, amruta ghrita, meghnaad agad, yapana agad, suryoday agad, lodhradi agad, rushabhakaadi agad, param agad, amruta ghrita.

CONCLUSION –

In ayurvedic texts nine antipoisonous formulation (agada) containing aparajita are described. It can be concluded that aparajita is beneficial in the treatment of snake bite, spider bite, rat bite, insect bite, fish bite.

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A REVIEW ON APARAJITA (CLITORIA TERNATEA) WITH SPECIAL REFERENCE TO VISHA CHIKITSA
Savita B. Chougule