

OCCASIONAL PAPER NO. 236

**RECORDS OF THE
ZOOLOGICAL SURVEY OF INDIA**

**Studies on some enthnomedicinal arachnids and insects in
relation to their usage as drugs among the tribals of
Sundarbans, West Bengal, India**

**S.C. MAJUMDER
A. DEY**

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and
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INTRODUCTION

Sundarbans is composed of a group of Islands comprising the area from the mouth of river Hoogly on the west and extends up to the river Meghna in the east covering from districts North and South 24 Parganas within the Indian territory and Khulna and Barisal in Bangladesh. It lies between 21.0 and 21.20 North latitude 88.0 and 89.0 longitudes occupying an area of 9827 Sq. Km. of which 4264 Sq. Km. falls within the jurisdiction of India. The name Sundarban derives from the "Sundari tree" which is prominent in the area. Vegetation includes wet evergreen mangrove forest. The area is divided into three zones : i) Inhabited zone ii) Buffer zone and iii) Core area. The study area includes only in the inhabited zone under two districts North and South 24- Parganas, West Bengal, India. Mainly three types of tribal population live in the inhabited zone of Sundarban namely Munda, Oraon and Santhal. According to the census of 2001, the recorded tribal populations in the 24 Parganas (South), Santhal, Oraon and Munda approximately, 1922 in the Kakdwip Division; 574 Oraon and Santhal in Namkhana Block; 1922 Santhal, Munda and Oraon in Patharpratima Division; 4406 Santhal and Munda in the Kultali Division, 850 Santhal and Munda in Joynagar II, only 22 Santhal in Joynagar I, 10,847 Santhal in the Canning II, 2,834 Munda and Santhal in Canning I; 305 Santhal and Munda in Mathurapur Block-1; 2,847 Santhal in Mathurapur Block-II, 591 Munda in Sagar Island and in the Gosaba where the largest tribal population 19,683 Munda, Santhal and Oraon. In 24-Parganas (North) Minakhan, Haroa, Hingalgunge and Hasnabad Blocks, 19245 Munda, Santhal and Oraon population inhabits in these area. Altogether approximately 81,000 tribal population inhabited in the Sundarban inhabited zones. The survey was carried out mainly in these inhabited areas to collect the data of ethnomedicinal uses of arachnids and insect by these tribal people. No consolated work yet has been available on ethnomedicinal uses of arachnid and insect. Although some fragmentary were available dealing with the medicinal arachnids and insects with some ethnomedicinal notes outside of India. Ferrington (1834) made taxonomic and ethnomedicinal studies on 10 species of spiders, 2 species of Hymenoptera, 1 species of Coleoptera and 1 species of Hemiptera and recorded their uses among the people of rural areas of America. Further investigation of the insect and arachnid species. Ferrington established the uses of these species in the homoeopathic system of medicine. Now a days these drugs established in the homoeopathic system of Indian Pharmacopia and still going on as glorious drug in the modern society. Bingham (1903) reported that in the rural areas of Europe neuralgic or nerve debility were also treated by biting up of some bees and wasp (Hymenoptera). Savoray (1935) stated that in rural areas of Europe and America injecting scorpion's blood (Arachnids) treated various types of pulmonary troubles. He also stated that Jaundice and Constipation were treated by eaten up of tarentulas spider (Family Lycosidae). Gertch (1945) reported Gout and Rheumatism were also treated by rubbing up theridiid spiders in some areas of Europe and America. He also stated the use of silk of certain spiders namely *Aranea diadema* (Family Araneidae) stop the blood in recent cutting wound, in some rural

areas of Europe and America. Ioyrish (1974) reported gastric ulcer and various types of wounds were also treated by honeybee's product (Hymenoptera) in some areas of Soviet Russia. Newlands and Akinson (1988) worked on the spider venom of families Clubionidae, Loxoscebidae and Theraphosidae from south Africa.

Tikadar (1968) made a taxonomic studies on some mygalomorph spiders (posses venom), family Ctenizidae and Theraphosidae from India. Tikader (1987) reported some phidippus spiders from Gujarat posses lethal venom which is not harmful to human being. Majumder (1987) made a biological study on some tarentulas spiders and reported 12 species of arachnids used as a drug in the homoeopathic system of Medicine. Recently Majumder and Mridha (2004) reported two medicinal spiders of the family Clubionidae and Lycosidae in relation to their usage as drugs among the tribal inhabited zone of Sundarban, West bengal. They also made pathological observations, uses of the spiders as drug in the system of Indian homoeopathic pharmcopia. The drug was prepared in the proportion 1 : 9 i.e. 1 part spider's products/powders of spiders and 9 parts rectified spirit. The spider product or drug was used orally to the domestic fowls (*Gallus gallus*). After administration of these drugs to the domestic fowl pathologically shown the increase of Lymphocyte and Eosinophil in one case. In the other cases shown the decrease of Neutrophil. These pathological observations are tallying with the Ethnomedicinal usage of drug of the tribal people.

The present paper deals with medicinal importance of arachnids and insects and their uses as drug by the tribal of Sundarbans. This work also includes the habitat of the species of arachnids and insects used as medicine by the tribal people, the places of collection, part of the animal used as medicine, method of preparation of medicine and the application of the same, the type of diseases cured and the name of tribes used the medicine.

MATERIAL AND METHOD

Surveys were undertaken to the different tribal areas of Sundarbans in different times. The information were collected from the tribal peoples after meeting them in data sheets with the information of the animals used for medicine, area of collection method of preparation of medicine collection, uses and the symptoms and remedies of diseases at different times. The similar information also collected from the local B.D.O. office and nearby health centers for comparision. The sample of the animals and plants used for the medicine were collected and brought to the laboratory for identification of species.

The medicinal information generally collected from a particular person who is well equipped of medical appliances of insect, plant and animal of a particular area called Baidyaraj or Hakim. All the medicinal application generally collected from the ethnomedicinal man of the tribal people.

Class ARACHNIDA

Order ARANEAE

1. *Argioope pulchella* Thorell

Diagnosis : 7 to 12 mm long, yellowish brown in colour. Distributed in all parts of mangrove and semi mangrove areas of sundarbans. They spin web.

Method of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
1. Web of the spiders power mixed with Durba root (<i>Cynodon dactylon</i>).	Applied locally to stop haemorrhages	Santhal	Chotta-mollakhali, Gosaba	24-Parganas (South)
2. Web of the spiders mixed with the leaf juice of Kuksima (<i>Blumea odorata</i>).	Applied locally to stop the bleeding of Piles.	Munda	Hemnagar, Hingalgunj	24-Parganas (North)
3. Spider dry powder mixed with stem bark powder of Punarnaba (<i>Boerhaavia diffusa</i>) taken with honey.	Applied in the case of dry cough and Coryza.	Oraon	Sadhupur, Gosaba	24-Parganas (South)
4. Spider dry powder mixed with leaf juice of Mukтажhuri (<i>Acalypha indica</i>). A piece of cotton saturated with the juice and inserted into the nostril.	For cure of congestive headache and to stop the bleeding of nostril.	Santhal	Amlamethi, Gosaba	24-Parganas (South)

2. *Nephila maculata* (Fabricus)

Habitat : Belongs to the family Araneidae, found in mangrove and semi mangrove areas of Sundarbans. They spin web, easily collected from the web from the mangrove or semi mangrove bushes.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
5. The spinneret part of spider was separated from the spider, dried up and makes into powders. The powder mixed with leaf juice of Tulasi (<i>Ocimum sanctum</i>).	For cure of Intermittent Fever.	Oraon	Bhangar	24-Parganas (South)
6. Carapace and Cheliceral parts of the spider dried up and makes into powder, mixed with seed-powder of Shephalika (<i>Nyctanthes arbor-tristis</i>).	Applied locally in case of Paralysis.	Munda	Sagar Island	24-Parganas (South)
7. Spider dust mixed with root dust of Patal (<i>Trichosanthes dioica</i>).	Taken in the case of blood vomiting	Munda	Kaorakhali, Kultali	24-Parganas (South)
8. Spider dust mixed with cow milk.	Used in the case of children who are intolerable to milk.	Munda	Dakhin gangadharpur, Patharpratima	24-Parganas (South)

3. *Neoscona mukerjei* Tikader

Habitat Belongs to family Araneidae, spin web, found in mangrove and semi-mangrove areas of Sundarbans. They were collected from the web in the mangrove and semi-mangrove bushes, sometimes from the huts of the tribal peoples.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
9. The spinneret part of the spider was dried up in the sun and makes into powders, mixed with leaf juice of Titpolla (<i>Luffa amara</i>).	Uses for enlargement of liver and fever even in the case of Kala-azar.	Munda and Oroan	Rajatduli, Gosaba	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
10. The spider powder mixed with seed powder of Titpolla (<i>Luffa amara</i>) to be taken with honey.	Applied in the case of Diuretic and as Purgative to children.	Santhal	Chottomollak-hali, Gosaba	24-Parganas (South)
11. Spider dust mixed with root dust of Kule Khara (<i>Hygrophila spinosa</i>) and honey.	Massage on forehead in the case of Insomnia.	Munda	Chimaguri, Sagar Island	24-Parganas (South)
12. Spider dust mixed with leaf juice of Dulal Tulasi (<i>Ocimum caryophyllatum</i>).	Taken in the case of blood Dysentery.	Oraon	Bhangar	24-Parganas (South)

4. *Cyrtohora cicatrosa* (Stoliczka)

Habitat : Belongs to the family Araneidae, found both in mangrove bushes as well as tribal houses; spin webs and reside in the web.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
13. The spinneret part of spiders were separated from the cephalic region and dried up in the sun and makes dust. The dust mixed with Chirata (<i>Gentiana chirata</i>).	Applied in the case of chronic fever during rainy season.	Oraon	Jharkhali, Basanti	24-Parganas (South)
14. The cheliceral or cephalic part of spider taken, dried up and powder mixed with Tomato juice (<i>Solanum lycopersicum</i>).	Applied for nerve debility.	Santhal	Jharkhali, Basanti	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
15. Spider dust mixed with honeybee's product. Applied locally on forehead.	Used in the case of chronic headache	Munda	Sahebkhali, Hingalgunj	24-Parganas (North)
16. Spider dust mixed with root dust of Thankuni (<i>Hydrocotyle asiatica</i>), used locally with mustard oil.	Used in the case of Erysipelas, redness of skin.	Munda	Sitalea, Hingalgunj	24-Parganas (North)

5. *Cheiracanthium melanostoma* Therell

Habitat Belongs to the family Clubionidae; do not spin web. They made white tubular sac. Hence they are called sac spider. Found on leaf of the paddy plant and mangrove and semi mangrove bushes.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
17. The spider were dried up and powder mixed with honey in the proportion of 1 : 9 i.e. 1 part of spider powder and 9 part of honey.	Taken in the case of Cardiac troubles.	Munda	Hemnagar, Hingalgunj	24-Parganas (North)
18. Powder dust of spiders mixed with milky juice of Bot tree. (<i>Ficus begalensis</i>).	Applied locally in the case of sore and foul Ulcer.	Munda	Jeliakhali, Sandeskhali	24-Parganas (North)
19. The spider dust mixed with leaf of Apamarga (<i>Achyranthes aspera</i>) made of pest. Applied locally on the affected part	Applied locally on the dropsical parts of the body.	Santhal	Balli II, Gosaba	24-Parganas (South)
20. The spider dust mixed with Nim seed oil (<i>Azadirachta indica</i>).	Used for message in the case of Rheumatism.	Oraon	Sambhunagar, Gosaba	24-Parganas (South)

6. *Cheiracanthium himalayensis* Gravelly

Habitat : Belongs to the family Clubionidae, do not spin web. They made white tubular sac. Hence they are called sac spider. Found on the leaf of the paddy plant and occasionally mangrove and semi mangrove bushes.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
21. The cheliceral and cephalic part separated, dried up and powder, mixed with bark dust of Akanda (<i>Calotropis gigantea</i>) in the proportion 1 : 9.	Applied locally with mustard oil in case of Rheumatism.	Santhal	Chhotta-mollakhali, Gosaba.	24-Parganas (South)
22. The spinneret parts of the spider separated and dried up and powder, mixed with honey.	Applied in a case of recurring Cold and Cough.	Munda	Bokkhali, Namkhana.	24-Parganas (South)
23. The spider powder mixed with dust of Shephalika (<i>Nyctanthes arbor-tristis</i>), used locally with mustard oil on the affected part.	In the case of Paralysis.	Munda	Jeliakhali, Sandeshkhali.	24-Parganas (North)
24. The smoke of the spider with Nim leaf (<i>Azadirachta indica</i>) use on the nostril.	Applied in the case of Insomania and Epilepsy.	Munda	Kumirmari, Gosaba	24-Parganas (South)

7. *Pardosa birmanica* Simon

Habitat : Belongs to the family Lycosidae. They are ground dwelling, essential predator of various types of insect pest; found on the paddy and corn fields.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
25. The spiders dried up and powder, mixed with ripe banana (<i>Musa sapientum</i>).	Taken daily in the morning in case of Asthma.	Munda	Sandeshkhali	24-Parganas (North)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
26. The living spider pushed into the ripe banana (<i>Musa sepientum</i>). After 2-3 hours it is eaten. This process continues for two weeks.	For cure of Bronchitis.	Santhal	Hingalgunj, Jharkhali	24-Parganas (North & South)
27. The whole spider is dried up and powders, mixed with white milky substance of Shweta Akanda (<i>Calotropis lactum</i>).	Applied for Toothache.	Munda	Rajballavpur, Patharpratima	24-Parganas (South)
28. The spider dust mixed with seed oil of Haritaki (<i>Terminalia chebula</i>).	Applied locally in the case of Rheumatism and arterial sclerosis.	Santhal	Bipradaspur, Gosaba	24-Parganas (South)

8. *Lycosa choudhuryi* Tolader

Habitat Belongs to the family Lycosidae, ground dweller, essential predator of various kinds of insect pests, found on the ground of paddy and corn fields, sometimes in the river beds also.

Mode of preparation of the medicine	Uses/type of disease	Name of the tribes	Place	Districts
29. The spider dried up and powder, mixed with dust of Olat kambal root (<i>Abroma radix</i>) in the proportion 1 : 9 e.g one part spider powder with nine parts of dust Olat kambal root.	Applied in the case of Diabetes.	Santhal	Uchal, Minakhan	24-Parganas (North)
30. Cheliceral part of the spider separated and dried up, powder and mixed with bark dust of Nim (<i>Azadirachta indica</i>).	Applied in the case of poisonous ulcer.	Oraon	Minkhan,	24-Parganas (North)

Mode of preparation of the medicine	Uses/type of disease	Name of the tribes	Place	Districts
31 Spinneret part of the spider separated and dried up made in powder mixed with root bark dust of Olat kambal (<i>Abroma radix</i>). To be taken twice daily.	Applied in the case of Dysmenorrhoea.	Santhal	Satjelia, Gosaba.	24-Parganas (South)
32. Spider powder mixed with seed powder of Kule Khara (<i>Hygrophila spinosa</i>). To be used once at night.	Applied in the case of Insomnia.	Santhal	Purandar, Basanti.	24-Parganas (South)

9. *Heteropoda venatoria* (Linnaeus)

Habitat : Belongs to the family Heteropodidae; found on mangrove and semi mangrove bushes, occasionally in houses or huts of some tribal people; do not spin web.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
33. The spiders were dried up and powdered. The powder mixed with Nim oil (<i>Azadirachta indica</i>) in the proportion of 1 : 9 and applied locally.	In the case of acute Rheumatism.	Santhal	Amlamethi, Gosaba.	24-Parganas (South)
34. Spider powder mixed with the leaf juice of Bhat (<i>Clerodendron infortunatum</i>).	Applied for worms of children.	Santhal	Sadhupur	24-Parganas (South)
35. Spider powder mixed with stem bark powder of Punarnava (<i>Boerhaavia diffusa</i>). To be taken twice daily	Applied in the case of high blood Pressure	Munda	Pathankhali	24-Parganas (South)
36. The spider dust mixed with leaf juice of Thankuni (<i>Hydocotyle asiatica</i>). Use locally on affected part of skin.	In the case of Psoriasis.	Oraon	Purandar, Basanti	24-Parganas (South)

10. *Spariolenus tigris* Simon

Habitat Belongs to the family Heteropodidae; do not spin web; found in the bushes as well as house or hut of the tribal people.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
37. The living spider pushed into the ripe banana (<i>Musa sepientum</i>) and taken once in a day	In the case of good lactation of mother of new born baby.	Munda	Hemnagar, Hingalgunj.	24-Parganas (North)
38. The spider dried up and made powder; mixed with the root powder of Durba (<i>Cynodon dactylon</i>) use once in a day.	Applied for Leucorrhoea.	Munda	Kultali	24-Parganas (South)
39. Spider mixed with ghee or milky juice of Bot tree (<i>Ficus bengalensis</i>). Used locally on gum.	Applied for Toothache.	Munda	Kalisthan, Namkhana.	24-Parganas (South)
40. Spider powder mixed with fruit powder of Kule Khara (<i>Hygrophila spinosa</i>). Taken once in a day	Applied for Insomnia.	Santhal	Lahiripur, Gosaba.	24-Parganas (South)
41. Spider dust mixed with Gulancha dust (<i>Tinospora cordifolia</i>). To be taken once daily after delivery.	Applied for purification of breast milk in case of the mother of newborn baby.	Munda	Harobhanga, Canning	24-Parganas (South)

11. *Phidippus bengalensis* Tikader

Habitat Belongs to the family Selticidae; do not spin web. They catch their prey by jumping hence called Jumping Spider. They are found in mangrove and semi mangrove bushes; sometimes in the flower garden.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
42. The cheliceral and carapace part are separated and dried up, made powder, mixed with powder dust of root bark of Akanda (<i>Calotropis gigantea</i>), used as an external application.	Applied in the case of gangrineous Ulcer.	Oraon	Amlamethi, Gosaba.	24-Parganas (South)
43. Spinneret part separated and dried up made powder, mixed with Haritaki dust (<i>Terminalia chebula</i>).	Taken in the case of Vertigo and Constipation.	Munda	Kumirmari, Gosaba.	24-Parganas (South)
44. Spider powder mixed with seed powder of Chandra (<i>Rauwolfia serpentina</i>). To be taken twice daily.	Applied in the case of Insomnia and high blood pressure.	Santhal	Satjelia, Gosaba.	24-Parganas (South)
45. Spider powder dust mixed with seed powder of Sephalika (<i>Nyctanthes arbor-tristis</i>).	Applied in the case of Dandruff.	Oraon	Kumrakhali Canning II	24-Parganas (South)

12. *Marpissa bengalensis* Tikader

Habitat Belongs to the family Selticidae. They do not spin web; catch their prey by jumping hence are called Jumping Spider; found in houses as well as paddy field and flower gardens.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
46. Whole of the spider dried up and made powder; mixed with the stem bark of Olat Kambal (<i>Abroma augusta</i>).	Applied in the case of Vertigo and Impotence.	Santhal	Sambhunagar, Gosaba	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
47. The spider dust mixed with the leaf juice of Bhat (<i>Clerodendron infortunatum</i>).	Applied in the case of intestinal Colic or worm troubles.	Oraon	Pathankhali, Gosaba	24-Parganas (South)
48. The spider dust mixed with leaf juice of Tulsi (<i>Ocimum sanctum</i>).	Applied in the case of Tonsillitis and Earache.	Santhal	Amtoli, Gosaba	24-Parganas (South)
49. The spider powder mixed with Sephalika (<i>Nyctanthes arbor-tristis</i>).	Applied in the case of Nausea, Vomiting and Headache.	Santhal	Patikhali, Canning II	24-Parganas (South)

13. *Crossoprhiza lyoni* (Blackwall)

Habitat : Belongs to the family Pholcidae. They were found in the houses in upright position.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
50. The legs of spider detached and pushed in ripe banana (<i>Musa sepientum</i>). Taken orally.	Applied in the case lactation of mother of newborn baby.	Munda	Patharpratima	24-Parganas (South)
51. The spider powder mixed with root powder of Olat Kambal (<i>Abroma radix</i>), taken orally.	In the case Diabetes.	Santhal	Satjelia, Gosaba.	24-Parganas (South)
52. Spider dusts mix with stem bark of Punarnava (<i>Boerhaavia diffusa</i>), taken orally.	In the case of Nausea and Vomiting.	Santhal	Satjelia, Gosaba.	24-Parganas (South)
53. The spider dust mixed with leaf dust of Nim (<i>Azadirachta indica</i>). Use locally on gum and teeth.	For Pyorrhoea and gum troubles.	Santhal	Sahebkhali, Hingalgunj.	24-parganas (South)

14. *Artema atlenta* Walekenaer

Habitat : Belongs to the family Pholcidae. The spider hanging in the houses or huts of tribal people. They are found hanging head directed downwards.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
54. The spider powder mixed with root bark powder of Nim (<i>Azadirachta indica</i>) in the proportion 1 : 9	Taken in the case of weak memory.	Munda	Chingrikhali, Hingalgunj	24-Parganas (South)
55. Cephalic parts of the spider dried up and powdered, mixed with fruit powder of Kantikari (<i>Solanum xanthocarpus</i>).	Applied in the case of lose of voice or Hoarseness.	Santhal	Dautpur, Gosaba	24-Parganas (South)
56. The sineret part of spider dried up and made powder, mixed with leaf juice of Ashwattha (<i>Ficus religiosa</i>)	Applied in case of losing flesh of fatty women.	Santhal	Hiramba gopalp ur, Patharpratima	24-Parganas (South)
57. The spinnert part of spider made powder mixed with the powder dust of Durba (<i>Cynodon dactylon</i>). To be orally taken and use locally.	Applied in the case of Epistaxis.	Oraon	Dakhinganga dharpur, Patharpratima	24-Parganas (South)

Order SCORPIONIDA

15. *Heterometrus (Heterometrus) bengalensis* (Koch)

Habitat Belongs to the family Scorpionidae; found under stone or log.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
58. The Scorpions boiled with mustard oil for 15 minutes.	Applied in the case of sacral Rheumatism as massage oil.	Munda	Nafargunj, Basanti.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
59. The cheliceral part of scorpions dried up made powder; mixed with the stem bark powder of rule Khara (<i>Hygrophila spinosa</i>).	Applied in the case of burning Mixuration.	Santhal	Chunakhali, Basanti.	24-Parganas (South)
60. The thoracic part and telson dried up and made powder, mixed with stem bark powder of Akanda (<i>Calotropis gigantea</i>), use locally with mustard or Nim oil.	Applied in the case of paralysis of lower limb.	Santhal	Lahiripur, Gosaba.	24-Parganas (South)

16. *Heterometrus (Srilanka metrus) servatus* (Pocock)

Habitat Belongs to the family Scorpionidae. They are found under log or bricks/stone etc.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
61 Only telson part powdered; mixed with leaf juice of Drona (<i>Leucus aspera</i>). To be used locally on affected part.	In the case of insect bite even snakebite.	Oraon	Bipradaspur, Gosaba.	24-Parganas (South)
62. The scorpion powder mixed with the stem bark powder of Arjuna (<i>Terminalia arjuna</i>).	Applied in the case of Cardiac troubles, Angina pectoris, etc.	Munda	Amlamethi, Gosaba	24-Parganas (South)
63. The scorpion dust mixed with seed dust of Sephalika (<i>Nyctanthes arbor-tristis</i>).	Applied in the case Sciatica.	Oraon	Kumirmari, Gosaba	24-Parganas (South)

Class INSECTA
Order COLEOPTERA

17. *Coccinella transversalis* Fabricius

Habitat : Belongs to the family Coccinellidae called lady bird beetle, very small in size usually found in flower and vegetable garden.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
64. The beetles dried up in the sun, made powder, mixed with 10 drops of milky juice or glue of Shweta Akanda (<i>Calotropis lactum</i>).	Taken in the case of Hydrophobia.	Munda	Amtali, Gosaba.	24-Parganas (South)
65. Beetle powder mixed with sticky substance of Bharanda (<i>Jatropha indica</i>), use locally on gum.	Applied for Toothache.	Munda	Uchal, Minakhan.	24-Parganas (North)
66. Beetle dust mixed with Nim seed oil (<i>Azadirachta indica</i>), use locally on affected parts.	Applied on the wrist in case of Rheumatism.	Santhal	Baramollakhali, Gosaba	24-Parganas (South)
67. Beetle dust mixed with Tomato juice (<i>Solemum lyopercicum</i>).	Applied for nerve debility	Munda	Hemnagar, Hingalgunj	24-Parganas (North)

18. *Harmonia arcuata* Fabricius

Habitat Belongs to the family Coccinellidae called lady bird beetle; small in size, usually found in flower and vegetable garden.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
68. The beetle collected and dried up made powder and mixed with Chirata dust (<i>Gentiana chirata</i>).	Applied in the case of Gastritis and loss of Appetite.	Munda	Kumirmari, Gosaba.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
69. Beetle dust mixed with leaf juice of Kalka sundi (<i>Cassia sophera</i>).	Applied in the case of Asthma.	Oraon	Chingrikhali, Hingalgunj.	24-Parganas (North)
70. Beetle powder mixed with dust of Bel fruit (<i>Aegle marmelos</i>).	Applied in Dyspepsia and Constipation.	Santhal	Bipradaspur, Gosaba.	24-Parganas (South)
71. Beetle dust mixed with leaf juice of Patharkuchi (<i>Coleus aromaticus</i>).	Used in case of Renal calculi and burning mixuration.	Santhal	Rangabelia, Gosaba.	24-Parganas (South)

19. *Micraspis discolor* (Fabricius)

Habitat Belongs to the family Coccinellidae; called lady dung beetle; found in vegetable and flower garden.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
72. The beetle dried up in the sun, made powder, mixed with stem bark dust of Ashwattha (<i>Ficus religiosa</i>).	Taken for Haemoptysis.	Santhal	Satjelia, Gosaba.	24-Parganas (South)
73. Beetle dust mixed with seed powder of Titpolla (<i>Luffa amara</i>).	Applied in case of Hiccough.	Oraon	Hemnagar, Hingalgunj.	24-Parganas (North)
74. Beetle dust mixed with leaf juice of Vasaka (<i>Justicia adhatoda</i>).	Taken for Dysuria.	Munda	Radhanagar, Gosaba.	24-Parganas (South)
75. Beetle dust mixed with leaf juice of Thankuni (<i>Hydrocotyle asiatica</i>).	Applied in case of Dyspepsia.	Santhal	Angabelia, Gosaba.	24-Parganas (South)

20. *Mylabris phalerata* (Pallas)

Habitat : This beetle generally called as Spanish fly belonging to the family Meloidae; found in mangrove and semimangrove bushes of Sundarbans.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
76. The beetle dried up in the sun and made powder, mixed with the bark juice of Kalo Jam (<i>Syzygium jambolanum</i>) in the proportion 1 : 9.	Applied for chronic dysentery	Santhal	Jharkhali, Basanti.	24-Parganas (South)
77. The beetle powder mixed with the leaf juice of Patharkuchi (<i>Coleus aromaticus</i>). To be taken orally.	Applied in the case of Renal Calculi and retention of urine	Oraon	Satjelia, Gosaba.	24-Parganas (South)
78. Beetle dust mixed with milk juice or glue of Shweta Akanda (<i>Calotropis lactum</i>).	Applied in the case of Hydrophobia.	Munda	Uchal, Minakhan.	24-Parganas (North)
79. Beetle dust mixed with leaf juice of Bel fruit (<i>Aegle folia</i>).	Applied in the case of Impotence.	Munda	Nafargunj, Basanti.	24-Parganas (South)

21. *Mylabris pustulata* (Thunberg)

Habitat : This insect generally called spanish fly belonging to the family Meloidae; found both in mangrove and semi mangrove bushes of Sundarbans.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
80. The insect dried up and powdered; mixed with root bark powder of Akanda (<i>Calotropis gigantes</i>).	Applied for ulcerative Colitis.	Oraon	Kathaberia, Basanti.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
81. Insect dust mixed with root powder of Patal (<i>Trichosanthes dioica</i>). To be taken orally once in a day.	Applied for retention and suppression of urine.	Santhal	Masjitbari, Basanti.	24-Parganas (South)
82. Insect dust mixed with bark dust of Asoka tree (<i>Saraca indica</i>). To be taken once in a day.	Applied in case of Leucorrhoea.	Munda	Jharkhali, Basanti.	24-Parganas (South)
83. Insect dust mixed with honey use locally on affected part.	Applied in case of burns.	Oraon	Kaliaghata, Namkhana.	24-Parganas (South)
84. Insect dust mixed with root dust of Drona (<i>Leucus aspera</i>). Use locally on affected part.	Applied on Carbuncle.	Santhal	G Plot, Patharpratima	24-Parganas (South)

22. *Luciola* Sp.

Habitat : This sparkling insect belongs to the family Lampyridae; distributed in mangrove and semi mangrove bushes and are also found in vegetable garden.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
85. The insect collected and pushed into the ripe banana (<i>Musa sepientum</i>). To be taken orally at alternate day.	Applied in the case of night blindness.	Santhal	Sridharpur, Patharpratima	24-Parganas (South)
86. The insect dried and made into powder mixed with leaf dust of Akanda (<i>Calotropis gigantea</i>).	Applied in case of obesity, decrease flesh and cured night blindness.	Oraon	Budhakhali, Namkhana.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
87. The insect powder mixed with root dust of Ash sheora (<i>Atista indica</i>). Taken orally thrice in a day.	Applied in case of intestinal Colic; all kind of camplain of Gall stone, Dysentery, Diarrhoea.	Munda	Beguakhali, Sagar Islands.	24-Parganas (South)

Order HYMENOPTERA

23. *Ocecophylla smaragdina* (Fabricius)

Habitat : This type of ant generally called Nasha pipra as the local name; belongs to the family Formicidae. They prepare their nest in the mango tree and lay their eggs.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
88. The eggs of the ant collected, milky juice of the egg were extracted and mxed with few drops of honey.	Applied in the case of Whooping cough.	Munda	Hirambag palpour, Partharpratima.	24-Parganas (South)
89. Whole of the ant dried and made it powder mixed with leaf juice of Tulsi (<i>Ocimum sanctum</i>). To be taken one teaspoonful daily.	Applied in the case of Coryza and nasal obstruction.	Munda	Deubari, Kultali.	24-Parganas (South)
90. Ant powder mixed with leaf dust of Tulsi (<i>Ocimum sanctum</i>) use locally with limewater on affected part.	Applied in the case of Ringworm.	Oraon	Jalaberia, Kultali.	24-Parganas (South)
91. Ant dust mixed with leaf dust of Tulsi (<i>Ocimum sanctum</i>) use locally with honey on affected part.	Applied in the case of Eczema on nose.	Santhal	Jharkhali, Basanti.	24-Parganas (South)

24. *Tetraponera rufonigra* (Jerdon)

Habitat : This ant generally called Mazali as local name, belongs to the family Formicidae; ground dweller as well as bark of the trees. They can be collected from the bark of the tree or on the ground.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
92. The ants dried up and powdered mixed with the root dust of Akanda (<i>Calotropis gigantea</i>). Use locally on the affected part with Nim or Mustard oil.	Applied in case of recurring Gout and Rheumatism.	Santhal	Chhottom-ollakhali, Gosaba.	24-Parganas (South)
93. The insect dust mixed with bark dust of Arjuna (<i>Terminalia arjuna</i>). To be taken orally.	Applied in the case of Cardiac troubles viz., Angina pectoris, Myocardial infection, etc.	Oraon	Caital, Minakhan.	24-Parganas (North)
94. The insect dust mixed with the leaf juice of Pathar kuchi (<i>Coleus aromaticus</i>).	Applied in the case of Renal Calculi or burning mixuration and suppressed urine.	Santhal	Dakhin Roypur, Partharpratima.	24-Parganas (South)
95. The insect dust mixed with leaf juice of Vasaka (<i>Justicia adhatoda</i>). To be taken orally.	Applied in initial stage of Tuberculosis.	Santhal	Sambhunagar, Gosaba.	24-Parganas (South)

25. *Camponotus compressus* (Fabricius)

Habitat : The ant locally known as Kat pipra, belongs to the family Formicidae; ground as well as bark dwellers. They can be collected from the bark of the tree or under the ground.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
96. The ants dried up, made into powder and mixed with the stem dust of Kule Khara (<i>Hygrophila spinosa</i>), use locally on the skin with honey.	Applied in the case of Allergy and Urticaria.	Santhal	Rajballavpur, Patharpratima.	24-Parganas (South)
97. Insect dust mixed with the fruit dust of Shephalika (<i>Nyctanthes arbor-tristis</i>), use locally as message with Nim oil or Mustard oil.	Applied in the case of Paralysis of lower limb.	Oraon	Ragabelia, Gosaba.	24-Parganas (South)
98. The insect dust mixed with Olat kambal stem dust (<i>Abroma angusta</i>). To be taken orally.	Applied in case of Dysmenorrhoea.	Santhal	Uchal, Minakhan.	24-Parganas (South)
99. The insect dust mixed with Thankuni leaf dust (<i>Hydrocotyle asiatica</i>), use locally with honey on the affected part.	Applied in the case of Eczema.	Santhal	Khashbailanda, Haroa.	24-Parganas (North)

26. *Solenopsis geminata* (Smith)

Habitat This ant locally called as Bispipra, belongs to the family Formicidae; ground as well as bark dweller. They can be collected from the bark of the tree or under ground.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
100. The ant dried up made it powder mixed with stem bark dust of Akanda (<i>Calotropis gigantea</i>), use locally as massage with Mustard or Nim oil.	Applied in the case of Paralysis for arms.	Oraon	Dakhin Roypur, Patharpratima.	24-Parganas (South)
101. The insect dust mixed with leaf juice of Durba (<i>Cynodon dactylon</i>).	Applied in the case of Cataract Ophthalmia.	Oraon	Kumirmari, Gosaba.	24-Parganas (South)
102. Insect dust mixed with the root dust of Thankuni (<i>Hydrocotyle asiatica</i>). To be taken orally.	Applied in the case of Constipation and Headache.	Oraon	Chunakhali, Basanti.	24-Parganas (South)
103. Insect dust mixed with stem dust of Kule Khara (<i>Hygrophila spinosa</i>). Applied locally with honey on the affected part.	Applied in the case of skin eruption with burning.	Oraon	Roydighi, Mathurapur-II.	24-Parganas (South)

27. *Vespa (Vespa) basalis* (Smith)

Habitat : This insect commonly called wasp, belongs to the famiy. Vespidae; distributed in the paddy field as well as mangrove and semi mangrove vegetation. They prepare their nest in the mangrove bushes or in the tribal hut.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
104. The wasp were dried up made into powder; mixed with stem bark dust of Akanda (<i>Calotropis gigantea</i>). Use locally on the affected part with Nim or Mustrad oil.	Applied in the case of numbness of hands and feet.	Santhal	Kumirmari, Gosaba.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
105. The wasp dust mixed with the root dust of Akanda (<i>Calotropis gigantea</i>) and use locally on the affected part.	Applied in the case of severe Carbuncle.	Santhal	Rajballavpur, Patharpratima.	24-Parganas (South)
106. The wasp dust mixed the root dust of Punarnava (<i>Boerhaavia difusa</i>) use locally on the affected parts with tarmaric.	Applied in the case of axillary gland swelling.	Oraon	Jamtala, Joynagar.	24-Parganas (South)
107. The wasp powder mixed with root dust of Nim (<i>Azadirachta indica</i>), use locally on the affected part.	Applied in the case of foul Ulcer.	Oraon	Roydighi, Mathurapur-II	24-Parganas (South)

28. *Vespa (Vespa) bicolor* Fabricius

Habitat : The wasp belongs to the family Vespide; distributed in the paddy field as well as mangrove and semi mangrove vegetation. They prepare their nest in the mangrove bushes or in the tribal hut.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
108. The wasps were dried up in the sun, made it powder; mixed with root dust of Punarnava (<i>Boerhaavia diffusa</i>), made it pest with honey, use locally on the affected part.	Applied in the case of Oedema of neighbourhood wounds.	Santhal	Barunhat, Hasnabad.	24-Parganas (North)
109. Wasp dust mixed with the stem dust of Gulancha (<i>Tinospora cordifolia</i>), to be taken orally.	Applied in the case of urinary tract infection with burning Mixuration.	Santhal	Rajaduli, Gosaba.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
110. The wasp dust mixed with the fruit dust of <i>Sephalika (Nyctanthes arbor-tristis)</i> , use locally on the affected part. Rubbing with Nim or Mustard oil.	Applied in the case of Paralysis of any part.	Munda	Gangadharpur, Kakdwip.	24-Parganas (South)
111. The wasp dust mixed with root powder of Shalpani (<i>Desmodium gangeticum</i>), to be taken orally.	Applied in the case of Head ache and eye troubles.	Munda	Kalitala, Hingalgunj.	24-Parganas (North)

29. *Vespa (Vespa) orientalis* Linnaeus

Habitat : The wasp belongs to the family Vespidae; distributed in the paddy field as well as mangrove and semi mangrove vegetation. They make their nests in the mangrove bushes or tribal huts.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
112. The wasp dried up in the sun made powder and mixed with the stem of Kule Khara (<i>Hygrophila spinosa</i>). To be taken daily.	Applied in the case of Allergy, red pimples with burning all over the body.	Munda	G-Plot, Patharpratima Nafargunj, Basanti.	24-Parganas (South)
113. The wasp dust mixed with leaf juice of Titpolla (<i>Luffa amara</i>). To be taken daily.	Applied in case of Nausea, Vomiting and Headache.	Santhal	Rajaduli, Gosaba.	24-Parganas (South)
114. Wasp dust mixed with stem bark of Arjuna (<i>Terminalia arjuna</i>).	Applied in the case of Cardiac trouble, Anjina pectoris, and Myocardial infection.	Munda	Burabanir Hat, Patharprtima.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
115. Wasp dust mixed with leaf juice of Punarnava (<i>Boerhaavia diffusa</i>). To be taken orally.	Applied in the case of Knee joint swelling.	Oraon.	Amalamethi, Gosaba.	24-Parganas (South)

30. *Vespa (Vespa) tropica tropica* (Linnaeus)

Habitat : The wasp belongs to the family Vespidae; distributed in the paddy field as well as mangrove and semi mangrove vegetation. They make their nest in the mangrove bushes or in the tribal huts.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
116. The wasp dried up and made powder mixed with bark juice of Ashwattha (<i>Ficus religiosa</i>). To be taken orally.	Applied in the case of Vertigo and Haematuria.	Oraon	Merigunj, Kultali.	24-Parganas (South)
117. Wasp dust mixed with the dust of Drona (<i>Leucus aspera</i>). Use locally on the affected part.	Arrest intense pains and burning of insect bite, rat, cat, scorpion, etc.	Munda	Satjelia, Gosaba.	24-Parganas (South)
118. Wasp dust mixed with the root dust of Punarnava (<i>Boerhaavia dffusa</i>), use locally by rubbing on the affected part with Mustard oil.	Applied in case of sacral Rheumatism.	Munda	Dayapur, Gosaba.	24-Parganas (South)
119. Wasp dust mixed with fruit powder of Sephalika (<i>Nyctanthes arbor-tristis</i>), use locally by rubbing with Mustard oil.	Applied in case of Sciatica.	Oraon	Lakshmikantapur, Mandirbazar.	24-Parganas (South)

31. *Apis indica* Fabricius

Habitat : This insect generally called honey bees belongs to the family Apidae. They are distributed inhibited zone, buffer zone and core area. They can be collected by netting.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
120. The insects deried up in the sun made it powder; mixed with stem powder of Gulancha (<i>Tinospora cordifolia</i>). To be taken once.	Used in the case of Allergy and Urticaria.	Munda	Jogeshwgunj, Hingalgunj.	24-Parganas (North)
121. The insect powder mixed with leaf juice of Kalmegha (<i>Andrographis paniculata</i>). To be taken once in a day.	Used for Headache and Constipation and also in Liver and Spleen enlargement.	Munda	Sripatinagar, Patharpratima.	24-Parganas (South)
122. The insect dust mixed with root dust of Durba (<i>Cynodon dactylon</i>). To be taken orally.	Applied in case Dysmenorrhoea Leucorrhoea.	Santhal	Bipradaspur Gosaba.	24-Parganas (South)
123. The insect dust mixed with stem bark powder of Gulancha (<i>Tinospora cordifolia</i>). To be used orally.	Applied in the case of Intermittent Fever and chronic disease even in the case of Jaundice and Spleen enlargement.	Oraon	Chaital, Minakhan.	24-Parganas (North)
124. The insects dust mixed with root and leaf dust of Thankuni (<i>Hydrocotyle asiatica</i>). To be taken orally.	Applied in the case of Hydrocele.	Santhal	Chhotto-mullakhali	24-Parganas (South)

32. *Apis drosata* Fabricius

Habitat : This insect generally called honey bees locally named as Moumachhi belongs to the family Apidae. They are distributed in inhabited zone, buffer and core area. They are collected by netting.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
125. The insects deried up in the sun, made it powder; mixed with the root powder of Akanda (<i>Calotropis gigantea</i>), use locally on the affected part with lime water, in some case of severe burning honey is used.	Applied in case of Boils and Carbuncle.	Oraon	Dakhin Roypur, Patharpratima	24-Parganas (South)
126. The insect powder mixed with root powder of Kule Khara (<i>Hygrophila spinosa</i>) with 1 : 9 ratio. To be used orally once daily.	Applied in the case of urinary and genital tract complains.	Munda	Khasbalanda, Haroa.	24-Parganas (North)
127. The insect dust mixed with root dust of Punarnava (<i>Boerhaavia diffusa</i>). To be taken orally.	Applied in the case of anasarca and Oedema of the lower eye-lid.	Oraon	Rajballavpur, Partharprtima	24-Parganas (South)
128. The insect dust mixed with the leaf juice of Thankani (<i>Hydrocotyle asiatica</i>). Use orally.	Applied in the case of Diarrhoea and Dysentery.	Munda	Gangadhar-pur, Kakdwip.	24-Parganas (South)
129. The insect dust mixed with root powder of Thankuni (<i>Hydrocotyle asiatica</i>), use orally.	Applied in the case of Dysmenorrhoea.	Munda	Uchal, Minakhan.	24-Parganas (North)

Order : HEMIPTERA

33. *Chrysocoris perpureus* (Westwood)

Habitat : This insect belongs to the family Scutelleridae; very sluggish, reside in the mangrove and semi mangrove area. Handpicking method can easily be collect them.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
130. The insects collected and roasted with the feather of Pigeon (<i>Columba livia</i>), the fume passes through the nostril of the affected person for 2-3 days.	Applied in the case of Epilepsy.	Santhal	Amtoli, Gosaba.	24-Parganas (South)
131. The insect collected and roasted with the leaf of Nim (<i>Azadirachta indica</i>). The fume passes through the nostril of the affected person.	Applies in the case of Ascites and Epileptic patients.	Oraon	G plot, Patharpratima	24-Parganas (South)
132. The insect collected and roasted with leaf of Akanda (<i>Calotropis gigantea</i>).	The fume is applicable in the case of Tuberculosis	Oraon	Amlamethi, Gosaba.	24-Parganas (South)
133. The insect collected and roasted with leaf of Kalkasundi (<i>Cassia sophera</i>).	The fume applicable in the case of Insenity.	Munda	Patikhali, Canning II	24-Parganas (South)

34. *Cimes talectularia* Linnaeus

Habitat This insect belongs to the family Cinicidae; found in the dwelling house.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
134. The insect collected pushed into the ripe banana (<i>Musa sepientum</i>). To be eaten 5-6 days.	Applied in the case of painful and bleeding of Piles.	Oraon	Amlamethi, Gosaba.	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
135. The insects powder mixed with stem bark of Akanda (<i>Calotropis gigantea</i>). Applies of the affected part with mustard Nim or oil Massage on the affected part.	Applied in the case of Rheumatism.	Oraon	Chaital, Minakhan	24-Parganas (North)
136. The insect dust mixed with the fruit dust of Haritaki (<i>Terminalia chebula</i>). To be taken orally once in a day.	Applies in the case of Vertigo, Constipation and anal fistula.	Munda	Gangadhar-pur, Kakdwip	24-Parganas (South)
137. The insect powder mixed with the root powder of Kule Khara (<i>Hygrophila spinosa</i>). To be taken orally.	Applied for Allergetic skin, red Pimples all over the body with burning.	Munda	Harobhanga, Canning	24-Parganas (South)

35. *Cimex macrocephalus* Fabricius

Habitat : This insect belongs to the family Cimicidae. They are very small insects, generally found in the dwelling house of the tribal people.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
138. The insects dried and made into powder; mixed with the leaf of Kuksima (<i>Blumea odorata</i>) and made into paste. The paste applied on the affected part.	Applied for painful and bleeding Piles.	Munda	Dakhin-gangadhar-pur, Pathar-partima	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
139. The insect dust mixed with the leaf juice of Kalmegha (<i>Andrographis paniculata</i>).	Applied in the case of Headache, Constipation and Fever.	Oraon	Kundakhali, Kultali.	24-Parganas (South)
140. The insect dust mixed with stem bark of Gulancha (<i>Tinospora cordifolia</i>). To be taken orally.	Applies in the case of muscular pain, Urinary and Genital tract infection	Oraon	Sashupur, Gosaba.	24-Parganas (South)

36. *Clovia puncta* Fabricius

Habitat : This insect belongs to the family Cercopidae. They are very small insect.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
141. The insects were dried up and made it powder, mixed with the leaf juice of Patharkuchi (<i>Coleus aromaticus</i>). To be taken orally.	Applied in the case of burning Mixuration.	Munda	Dakhin Roypur, Pathar Pratima	24-Parganas (South)
142. The insect dust mixed with stem bark of Punarnava (<i>Boerhaavia diffusa</i>). To be taken orally.	Applies Oedema of lower eye-lid.	Oraon	Dakhin-gangadhar-pur, Pathar-pratima.	24-Parganas (South)
143. The insect powder mixed with root bark of Akanda (<i>Calotropis gigantea</i>). To be taken orally.	Applied in the case muscular pain.	Munda	Rajaballavpur Pathar-pratima	24-Parganas

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
144. The insect dust mixed with white glue of Shweta Akanda (<i>Calotropis lactum</i>). Applied locally on affected part.	Applied in the case of Pyrrhoea.	Santhal	Jharkhali, Patharpratima	24-Parganas (South)

Order DIPTERA

37. *Lucilia cuprina* Wiedemann

Habitat : This insect belongs to the family Calliphoridae, greenish in colour, distributed in mangrove and semi mangrove area. They are collected by sweep net.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
145. The insect dried up, mixed with leaf dust of Thankuni (<i>Hydrocotyle asiatica</i>). To be used locally with honey or Mustard oil on the affected part.	Applied on eruptive skin disease, Eczema and Psoriasis.	Munda	Jharkhali, Basanti.	24-Parganas (South)
146. The insect dust mixed with root dust of Olat kambal (<i>Abroma radix</i>). To be taken orally.	Applied in the case of delayed Menstruation and Dysmenorrhoea.	Munda	Taldi, Canning	24-Parganas (South)
147. The insect dust mixed with bark juice of Kala jam (<i>Eugenia jambolana</i>). To be taken orally.	Applied in the case of Chronic dysentery	Munda	Kumirmari, Gosaba.	24-Parganas (South)
148. The insect dust mixed with whole of the plant dust of Thankuni (<i>Hydrocotyle asiatica</i>). To be used orally and applied locally.	Applied in the case of Pruritus vulva and active Leucorrhoea.	Munda	Chaital, Minakhan	24-Parganas (North)

38. *Chrysomya megacephala* (Fabricius)

Habitat : This insect greenish in colour, distributed in mangrove and semi mangrove area of Sundarbans.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
149. The insect powder mixed with the leaf juice of Bhat (<i>Clerodendron infortunatum</i>). To be taken orally.	Applied in the case of warm trouble and flatulence Colic.	Munda	Gangadharpur, Kakdwip.	24-Parganas (South)
150. The insect dust mixed with leaf juice of Kalmegh (<i>Andrographis paniculata</i>).	Applied in the case of Headache, Constipation and loss of Appetite.	Santhal	Boshyam-nagar, Patharpratima	24-Parganas (South)
151. The insect dust mixed with leaf juice of Patharkuchi (<i>Coleus aromaticus</i>). To be taken orally.	Applied in the case of severe Renal pain.	Munda	Rajballavpur, Patharpratima	24-Parganas (South)
152. The insect dust mixed with root dust of Durba (<i>Cynodon dactylon</i>). To be taken orally.	Applied in the case of bloody Leucorrhoea.	Munda	G-Plot, Patar pratima	24-Parganas (South)

Order ODONATA

39. *Ceriagrion coromandelanum* (Fabricius)

Habitat This insect belongs to the family Libellulidae. They are distributed in the mangrove and semi mangrove areas of Sundarbans.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
153. The insect dried up, and mixed with the stem dust of Gulancha (<i>Tinospora cordifolia</i>) To be taken orally.	Applied in the case of Allergy	Munda	Amlamethi, Gosaba	24-Parganas (South)

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
154. The insect dust mixed with juice of Muktabarshi (<i>Acalypha indica</i>). To be used orally.	Applied in the case of Pharyngitis.	Oraon	Kundakali, Kultali	24-Parganas (South)
155. The insect dust mixed with root bark of Kantikari (<i>Solanum xanthocarpums</i>). To be taken orally.	Applied in the case of eye troubles.	Munda	Jalaberia Kultali	24-Parganas (South)
156. The insect dust mixed with root dust of Patal (<i>Trichosanthes dioica</i>). To be taken orally with warm water.	Applied in the case of vomiting with Hepatic hypertrophy.	Munda	Merigunj, Kultali	24-Parganas (South)

Order ANOPLEURA

40. *Pediculus humanus capitis*

Habitat : This insect belongs to the family Pediculidae. They are very small and found on the cephalic hairs of tribal people of Sundarbans.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
157. The insect dried up and mixed with the stem bark powder of Gulancha (<i>Tinospora cordifolia</i>). To be taken orally.	Applied in the case of Allergy and Utricarea.	Munda	Debipur, Kultoli	24-Parganas (South)
158. The insect dust mixed with leaf juice of Bhat (<i>Clerodendron infortunatum</i>). To be used orally.	Applied for Nausea, Vomiting and abdominal pain.	Santhal	Charavidya, Basanti	24-Parganas (South)
159. The insect dust mixed with leaf juice of Sephalika (<i>Nyctanthes arbor-tritis</i>). To be taken orally.	Applied in the case of chronic Intermittant fever.	Santhal	Majitbari, Basanti	24-Parganas (South)

Order ORTHOPTERA

41. *Blata orientalis* Linnaeus

Habitat : This insect belongs to the family Blattidae, generally they are distributed in grass land, houses or huts of the tribal peoples. They can be collected by handpicking method.

Mode of preparation of medicine	Uses/type of disease	Name of the tribes	Place	Districts
160. The insect is boiled with water and mixed with fresh leaf of Drona (<i>Leucas aspera</i>), boiled again for 15 minute. Taken after cooling.	Applied for Asthma.	Munda	Sitalia, Hengalgunj.	24-Parganas (North)
161. The cardiac part of the insect taken out, dried up, made it powder and mixed with fresh leaf juice of Vasaka (<i>Justicia adhatoda</i>).	Applied in the case of Bronchitis.	Santhal	Chhottomolla kahli, Gosaba	24-Parganas (South)
162. The insect except legs and wings dried up mixed with leaf juice of Kalkasundi (<i>Cassia sophera</i>). To be taken orally.	Applied in the case of Dysuria.	Santhal	Lahiripur, Satjelia, Gosaba.	24-Parganas (South)
163. The insect collected and roasted with the bark of Akanda (<i>Calotropis gigantea</i>), fume passes the nostril of affected person.	Applied in the case of Tuberculosis.	Munda	Bhangar	24-Parganas (South)

OBSERVATION, RESULT AND DISCUSSION

The present work deals altogether 163 medicinal uses of 41 species of arachnids and insects, which are commonly used as medicine by the tribal people of Sundarbans. Data were collected among 3 tribes of Sundarbans, belong to 2 districts of West Bengal, India.

Out of these 41 species, 16 species were arachnids and 25 species were insects. Among the arachnids 14 species were spider and 2 species were scorpion. The insects species were Coleoptera (6 species), Hymenoptera (10 species), Hemiptera (4 species), Orthoptera (1 species), Diptera (2 species), Odonata (1 species), Anopleura and Pediculus (1 species).

In these observation some cases only the animal part was used as medicine, whereas in other cases the animal part along with medicinal plant and their products used as medicine. It was also observed that some time only one species of arachnid or insect used as medicine; sometimes more than one species mixed together and uses as medicine or sometimes a number of species mixed with some medicinal plants and other substances and used as medicine.

It had also been observed that drug prepared from one species used for successfully the remedy of one disease or in some cases more than one disease. It was also observed that Rheumatism and heart troubles treated successfully with poisonous insect and arachnid.

Among these 161 medicinal applications, 63 medicinal applications were made from arachnida (57 of spiders and 6 from scorpions) and 100 from insect species. Some of these medicinal applications used locally and some of them applied orally for the cure of diseases. Among the spiders the local applications generally for the cure of Toothache, Rheumatism, recurring Gout, Urticaria, Allergy, Paralysis of Limbs, skin eruption, Ring worm, Carbuncles, Numbness of hands. The oral applications for the cure of Hydrophobia, nerve debility, Gastritis and loss of appetite, Asthma, Dyspepsia, Constipation, Renal calculi, Dysuria, Hiccough, Haemoptysis, Dysentery, Retention of urine, Impotence, Ulcerative Colitis, Dysmenorrhoea, Emphysema, Burns, Night blindness, Obesity, Gall stone and Nasal obstruction.

Among the scorpions, the local applications helped for the cure of Sciatica, Rheumatism, Paralysis, insect and snake bites. The oral applications for the cure of burning micturition, Cardiac troubles (Angina pectoris and Myocardial infection) treated successfully.

Among the insects local applications used for the cure of Carbuncles, Boils, Numbness of hands, Foul ulcer, Oedema, Insect bite, Insanity, Tuberculosis, Hysteria, Epilepsy, painful bleeding Piles, newly cutting wound, Sciatica, Paralysis of different parts of the body. The oral applications are for the cure of Ringworm, Eczema, Cardiac troubles (Angina Pectoris

and Myocardial infection), Renal calculi, Tuberculosis, Ophthalmia, Constipation, Headache, Suppression of urine. Night blindness. Diarrhoea, Whooping cough, Renal calculi, Eye troubles, Pruritus vulva and Acrid Leucorrhoea.

Majority of these medicinal applications the animals or their parts mixed with medicinal plants and their products and used as medicine.

From the above account it is established that the traditional animal drugs are much more relevant today than any other time because the great majority of the people in developing countries can not afford allopathic treatment, especially in complicated and serious cases, owing to the prohibitive cost. This system has an added advantage when compared to the allopathic system. Its efficacy has been proved by the generations and it has practically, no side effects.

Therefore, it is the high time that every modern primary health care center should have a physician's well versed in traditional drug. It is also required to open training and research center to bring traditional drugs on firmer scientific footing. If researches show that some of these drugs used in curing louse and pharmaceutical value. In conclusion it may be stated that this being a new concept, study needs many years of pain staking reserach for its proper development.

IMPLICATION FOR MEDICAL PRACTICE

The Alma Ata Declaraton "Health for All by 2000 AD" is impossible to be achieved in India by Allopathic alone. It is therefore, being increasingly felt necessary to make use as much as possible of traditional system of medicine. One of the most neglected traditional modes of health care is the medicinal application of insects and arachnids because of the lack of knowledge as well as the dearth of materials. It is for the first time that detailed data are collected on these regards and found that many of them utilised by the tribal as well as the other villagers.

On examination of the literatures it is found that our knowledge of traditional insect and arachnid drugs is meager except for the occasional writings of verrier Elwn and other eminent Anthropologists and in report of different forest department. Even in *Materia Medica* by Kent (1970) Mathur (1972), Boericke and Nug (1976) mentioned of about dozen of arachnid and insect drugs. Much information is available in Watt (1889-1896) and "The wealth of Indian Row Material" (1948-1976).

A major advantage of this system is that it is very low costs. It is impossible for an average Indian to afford the cost of prolonged allopathic treatment. Further the service of

an allopathic doctors are not readily available in many areas. Even in cases where the necessary facilities are available many of them can not afford the post-hospital or post treatment care. So it is high time that we should use the available traditional medicines as much as possible. Added to it, the system has practically no any side effects.

To get the maximum advantage of the medical applications of insects and arachnids, the first thing to do is to establish a few training or teaching and research centres of excellence. Once this is achieved and proper talent is attracted, the system will establish itself. The other handicap is the scarcity of insects and arachnids. Once the efficacy of the medicine is proved, the animals can be rare. Unlike the Allopathic doctors, those trained in the traditional system will only be too happy to go back among the villagers, from where they can be drawn for training.

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