



Taxonomic Study of Potter Wasp (Hymenoptera: Vespidae: Eumeninae) from Koradi Region Dist. Nagpur, India

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Abstract

Wasp is the diverse group of insect belonging to the order Hymenoptera and the sub order Apocrita. Potter wasp are solitary wasp which is mainly feed on nectar but their offspring are carnivorous they mostly feed on pest insect like beetle larvae, caterpillar. Adult wasp paralyzing pest insect and place in to the nest to serve as a food for their offspring this character making wasp valuable in horticulture for biological pest control. In present work comprehensive survey was done during the year 2013-2015 for explore these beneficial creatures, six species of potter wasp belong to three genera are recorded. Four wasp species from the genus *Delta*, *Delta pyriforme pyriforme* (Fabricius, 1775) *Delta conoideum* (Gmelin, 1790) *Delta esuriens* (Fabricius, 1787) *Deltadimidatipenne* (de Saussure, 1852), one species from genus *Rhynchium*, *Rhynchium brunneum* (Fabricius, 1793) and one species from genus *Xenorhynchium*, *Xenorhynchium nitidulum* (Fabricius, 1798) from the sub family Eumeninae of the family Vespidae are recorded from the koradi region state Maharashtra, India

Key words- Vespidae, Eumeninae, potter wasp, mason wasp, beneficial insect

Introduction

Potter wasp or mason wasps are cosmopolitan insect belonging to the family Vespidae and subfamily Eumeninae it is widely distributed subfamily which includes about 3,000 species more than 200 genera (Pickett and Carpenter, 2010). The potter wasps are recorded from various state of India, some important informative contribution on potter wasp are available by (Van der vecht 1937, 1959, 1961, 1963, 1981). Roy and Kundu 1985, Gupta 1995, 1997, 2003, 2007) note worthy contribution of taxonomy on Indian potter wasp. In present work comprehensive survey was done during the year 2013-2015 for explore these beneficial creatures.

Materials and methods

The survey was conducted during the year 2013-2015 from various sites of Koradi region. Adult potter wasps were collect from various weeds, grassland and houses with help of insect collecting net. Wasp nest also took to laboratory for observe the adult wasp emergence. The specimens study under the stereo zoom microscope identified the species with the help of reference.

Observation

Delta pyriforme pyriforme (Fabricius, 1775)

Image no. -1

Diagnosis: Female- head yellow, a broad black transverse band between the eyes on the vertex; occiput mostly black; antenna reddish- brown; pronotum entirely and mesoscutum anteriorly yellow; tegula, parategula, scutellum and metanotum reddish brown; propleuron black; mesopleuron, metapleuron, propodeum and legs reddish brown with a narrow medial vertical black line; the structure between scutellum, metanotum and propodeum black; petiole and basal third of the second gastral segment reddish brown, the former black at base and with a subapical black band, the middle of the later black, its posterior third and the visible part of the

remaining abdominal segments yellow. Wings deep flavohyaline. Frons and vertex of the head and thorax with close shallow punctures, petiole smooth, the rest of the abdomen with the surface finely longitudinally aciculate; clypeus pyriforme, its apex truncate; petiole broadening towards the apex and slightly flattened. Male are slightly smaller than female. size Female 25-27mm; male 20-25mm.

Delta conoideum (Gmelin, 1790)

Image no.-2

Diagnosis: Female -head yellow except mandibles and antenna reddish, a broad transverse band across the apex between the top of the eyes black, black mark extends behind the vertex to occiput; thorax red with black patches on mesoscutum, metapleuron and median area of propodeum, propleuron entirely black; legs pale reddish; gaster dark red with base of the second tergite and a short transverse medially interrupted band on its middle above black. Forewing basally flavohyaline and apically fuscohyaline, with a slight purplish refringes. Head above the antenna and thorax closely and lightly punctured; clypeus pyriforme, its apex truncate; gaster smooth and shining with the surface minutely aciculate. Male similar to female in general appearance but smaller and slighter size female 23-26mm, male 18-22mm

Delta esuriens (Fabricius, 1787)

Image no.-3

Head yellow to brownish with following black marking: a broad band on vertex including upper half of frons extending behind vertex to outer side of temple and to occiput, a black mark on anterior tentorial pit extending to subantennal suture to dorsal side of antennal scrobe and touches to the black band on frons and vertex (this black marking highly variable and absent in some species); antennae light reddish; pronotum and postscutellum yellow; propleuron and pronotal collar basally black or blackish-brown and

mesopleuron yellow to brownish-yellow except mesepimeron brown to bluish-brown and mesosternum black; mesoscutum black except a large brown area posteriorly; scutellum, propodeum and legs reddish; petiole light reddish except at base black, at apex black band and the yellow band; second gastral segments yellow, with their bases black. Wings flavohyaline with a narrow subapical dark infumation on forewing. Male structure similar to female in general appearance but slender. Size female 14-20 mm; male 14-17 mm.

Delta dimidiatipenne (de Saussure, 1852)

Image no.-4

Diagnosis Female- body obscure dull red with following black marking; vertex, extending to occiput usually at the apex of antennae, propleuron, mesopleuron except two red patches, metapleuron except a red patch on upper metapleuron, mesoscutum, base of petiole, apical half of second tergite and whole of the remaining tergites. Wings ferruginous, with apical half of forewing fuscous having a purple reflection. Clypeus smooth, oval, convex, anterior margin transverse; abdomen smooth and shiny. Male are similar to female in general appearance except the clypeus and the lower half of frons yellow, smaller and slighter size female 24-27mm, male 22-25mm.

Rhynchium brunneum (Fabricius, 1793)

Image no.-5

Diagnosis: Female - Brownish-red with the following black marks; a spot on interantennal space, a vertical line on lower frons, around ocelli, occiput, a large triangular mark on mesoscutum in front, a transverse line along its apex, propleuron, mesopleuron, metapleuron, propodeum in the middle and lateral sides below, basal two thirds of the first and the basal half of second abdominal tergite, first and second abdominal sternites, base of third abdominal sternites. Legs brownish-red with variegated black markings. The black markings are highly variable. Wings yellowish hyaline, deeper and darker towards base. Clypeus strongly convex, pyriform, the apical third with a broad medial vertical groove, the extreme apex truncate or slightly incised; mesoscutum posteriorly and scutellum impunctate; metanotum somewhat compressed medially. Male structure similar to female in general appearance but clypeus and scape in front light fulvous red to bright yellow; midfemur basally emarginated. Size Female: 17-20mm; Male: 12-15

Xenorhynchium nitidulum (Fabricius, 1798)

Image no.-6

Diagnosis: Female -Body black with lower part of ocular sinus brown; wings deep fuscous with a purple reflection broadly along costal margin of forewing, the rest fusco-hyaline. Clypeus pyriform, bisinuate at apical half, apex broadly emarginated and angularly incised, sides on either side of apex oblique; labrum triangularly pointed at apex; tegula enlarged laterally, exceeding parategula posteriorly; postscutellum

strongly raised above the level of adjoining areas of propodeum, the flattened dorsal surface approximately rectangular and about as long as the vertically sloping posterior surface; propodeum with prominent lateral angles, the concave declivity rather sharply separated from dorsal and lateral areas. Male Antennal hook long and curved, somewhat dilated and flattened in apical half, with rounded apex, in curved position it almost reaches the apex of ninth antennal segment; S7 rather strongly excavated, the concave area finely, granulately punctuate and bordered by an arcuate and blunt ridge; parameral spine elongate. Colour is same as female except base of clypeus and ventral side of scape whitish-yellow, all flagellar segments brown ventrally, lower part of ocular sinus brown. Size: Female 14-15mm, Male 14-15mm.

Summary

The present paper includes the taxonomic study of potter wasp family Vespidae from koradi region. It consist six species belong to three genera. Four wasp species from the genus *Delta*, one species from genus *Rhynchium*, and one species from genus *Xenorhynchium*, are recorded from the koradi region state Maharashtra, India

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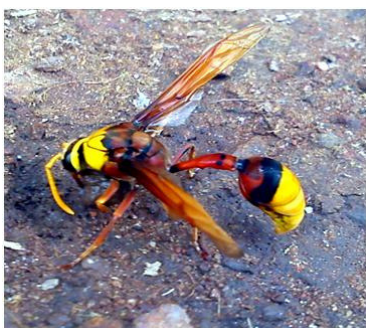
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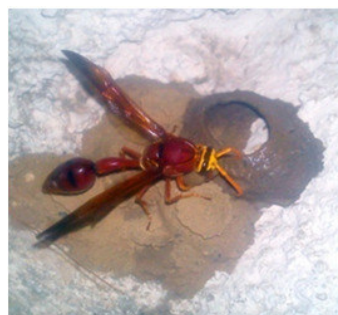
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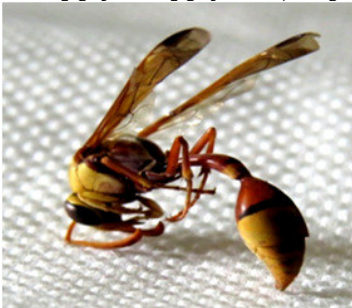
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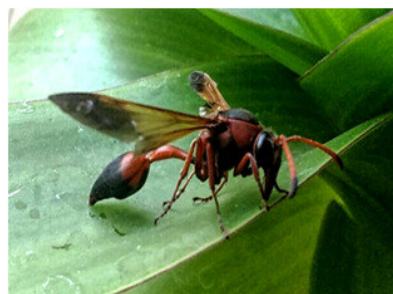
Delta pyriforme pyriforme (Image no. 1)



Delta conoideum (Image no. 2)



Delta esuriens (Image no. 3)



Delta dimidiatipenne (Image no. 4)



Rhynchium brunneum (Image no. 5)



Xenorhynchium nitidulum (Image no. 6)

