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"Studies on species Diversity of Moths from Aurangabad District (M.S.)"

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Abstract:-

Moth belongs to order Lepedoptera it is one of the mega orders of class insect, which occurs throughout the world in both warm and temperate climates. They are day flies. Approximately 1.5 million species of animals, plants and microbes are known on earth out of which over 8 laks are insects. This species diversity is result of a wide array of forms and functions that the insects display.

Intoduction:-

Recent estimates report over 1,27,000 species of moth from all over the worth (Alfred et. Al.1998) of which over 12,000 species are recorded from India. (Chanra and Nema 2007)

More than half of the world known animal species are insect (Wilson 1992, Zhang 2010,2011). In which Lepidoptera is the second largest and more diverse order in class in Insecta (Benton,1995). Up till now more than 100,000 species of Lepidoptera are of great importance in larval stagers. There are Phytophagus and act as serious pest, depliarers, pollinators and parasites. Majority of species devour foliage and shorts of trees and crops.

Moths and particularly their caterpillars are a major agricultural pest in many parts of the world several moths in the family Tineidae are commonly regarded as pest because their larvae eat fabric such as clothes and blankets made from natural proteinaceousflibers such as wood or silk (Scott, 1995).

The species diversity in Aurangabad district which included 2000 to 3000m. The moth are collected from various field, the moth are collected from different localities with the help of catching nets and setting traps at night time. Specimens were killed with the help of killing bottle containing chloroform or ethylacetate and brought to laboratory, specimens were pinned (about 10 – 20 from vertical through middle of mesothorax) and spread properly on spreading board and dried in oven at 35 – 40 to 30 hrs. Dried specimens were preserved in insect cabinets.

The moths are identified and classified with the available literature (Hampson 1894-96 , Bell and Scott 1937).

Material and methods:-

Moth were collected from various sites in Aurangabad District. Specimens were collected with the help of cathing nets and setting taps at night time for moth collection. Moths are collected at night.

Speciemns were killed with the help of killing bottle containing chloroform or formalin or ethyl acetate and brought to laboratory. After that spread these specimens on spreading board and dried in the oven at 35-40 0C for 24 hours. Dried specimens were preserved in insect cabinets. Collected specimens are identified from published literature, (Wynter Blyth, 1957, Evans, 1985, Thoas Gay etal, 1992, Kunte, 2000). An extensive survey was conducted at various sites covering major area of Aurangabad District. All observations were made during day and night time.

Result and discussion:-

Hawk moths are the fastest flying moths and are known to travel long distances during their migrations. Their body is stout cigar-shape with long narrow forewings. Most have an extra longprobocis, as long as 13 cm. This makes them

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specialized pollinators of tubular flowers, whose nector cannot be reached by most other insect pollinators. These moths can usually have been seen hovering over flowers at dusk. Hawk moth caterpillars have a typical hornet the end of the tail. Same have dramative eye – markings hidden in folds of the skin. When alarmed these skin segment expand to display the 'eyes'. To add the effect the caterpillar will sway its head to specialized pollinators of tubular flowers, whose nector cannot be reached by most other insect pollinators. These moths can usually have been seen hovering over flowers at dusk. With luck you may will see one laying a single egg on the wing Hawk moth caterpillars have a typical horn at the end of the tail. Many of these caterpillars are large almost as thick as your finger and when alrmed they tend to rare their heads in a sphinx-like posture. That is why they are also called sphinx moths when alarmed, the caterpillars as well as the adults of the Deaths Head Hawk moth actually squeak by exhaling air from the spiracles on nearing pupation caterpillars turn pale and often change colour.

Moth are nocturnal habits because of that they are among the least known creature in the insect world. Moth are key pollinators of food plants used by humans their caterpillars play a vital ecological role in the health of natural ecosystems. Silk moths have conteibuted so much to the well being of human societies.

Moths and butterflies belong to the Lepidoptera group which gets its latin name on account of its wings that are covered with scales arranged like roof tiles. We must have noticed that when we hold a moth or butterfly between our finger a coloured 'power' comes off on to our fingers. This power is infact nothing but other than the tiny scales with which the moths wings are covered.

Moths and butterflies have been described more for convenience as the division is artificial based on superficial differences groups like swallotaile,blue,yellow,whites and nymphlids, butterflies have clubbed antennae. Moths do not have clubbed antennae like other insect's moths do not have a skeleton inside their bodies. Instead they have a hard outer covering called an exoskeleton which is composed of a substance called chitin.

The mouth part of the adult moth are modified into a long colled tongue called a probocis. A moth goes through several district stages in its life cycle egg to larval to pupa, pupa to adult. This process is called as complete metamorphosis.

The adult moth consume only liquid which it sucks through its straw – like proboscis that consists of two highly modified moth parts held together by a series of hooks and spikes to from a tube.

It is strong but true that same moths like the Atlas, Moon, Tussar and several other have no proboscis for these do not feed at all during their short adult life span.

Hawk moths have a probocis longer than the body. Not all moths are nector feeders as same prefers juices from over – ripe fruits oozing plant sap liquid mud, animal dung, urine, human sweat and body fluids of dead animal. A few even visit the eyes of mammals for the saline secretions found there.

Convince a potential attacker that it is a snake many of these caterpillars are large almost as thick as your finger and when alarmed they tend to rear their heads in a sphinx moths. When alarmed the caterpillars as well as the adults of the Deaths head Hawk moth actually aqueak by exhaling air from the spiracles.

The emperor moths are among the most spectacular moths and are known for their size and beauty. The most notable among these is the atlas moth the largest in the world with a wing span of 33 cm. Indians have known Tussar, Muga and Eri moths frothier silk moth before the advent of the mulberry silk moth from china.

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Surprisingly adult moths in this group have no mouth parts as they never eat during their brief life span of two to three weeks. Male have well-developed feathery antennae with which they can pick up the chemical attractants (pheromons) of a newly emerged female by following its scent trail from a distance of a couple of kilometers.

The eggs of this species are laid in small cluster on the food plant. The caterpillars are stout, often with sparse hair and tubercules. The cocoon is strong made of silk and an adhesive substance and in coverd with leaves. A strong loop of silk is woven around the branch to secure the cocoon. The moth emerges by exuding an alkaline liquid to dissolve the silken wall of the cocoon. This is the reason why the Tussar and Muga cocoons are immersed in boiling water to kill the pupa so that the silk strands are not dissolved by the emerging moth cocoons are immersed in boiling water to kill them.

Silk moth: Silk moth such as the mulberry silk moth is possibly the best known insect to man after the honey bee. So domesticated are these moths that today no wild populations exist at all one of the nearest wild relatives of this 'silk worm' is Huttons silk moth is commercially bred for the value of its silk on mulberry leaves.

Generally silk moths are small to medium sized and do not possess proboscis. This is because they do not feed during their brief adult life span of one of two weeks. The energy they require is derived from fat reserves accumulated during the caterpillar and feathery. Female silk moths are larger and more hairy than males.

Silk moths lay eggs in small clusters and some species lay up 300 to eggs. Caterpillars one smooth and elongated with lumps on the back and a small slender horn on the end . A majority of them feed on wild figs, peepal and banyan. One species has also been recorded feeding on the sand paper tree.The caterpillars weave a man of silken cocoons among the leaves of the food-plant. The emerging moths than release an alkaline fluid which softens the silk and dissolves it allowing the insect to make good its escape. This infact commercial sericulturist must sook cocoon in hot water to kill pupa. This is the only way to prevent the silken strands from being broken by the emerging moth.

Plate – 6

Check list of moth

1) Hummingbird Hawkmoth *Macroglossumparticolor*
2) Tasar silk Moth Antheraeopaphia
3) Owl Moth *Erebus macrops*
4) Chasmina sp.
5) Red Hawkmoth
6) Mulberry silk worm

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Plate VI

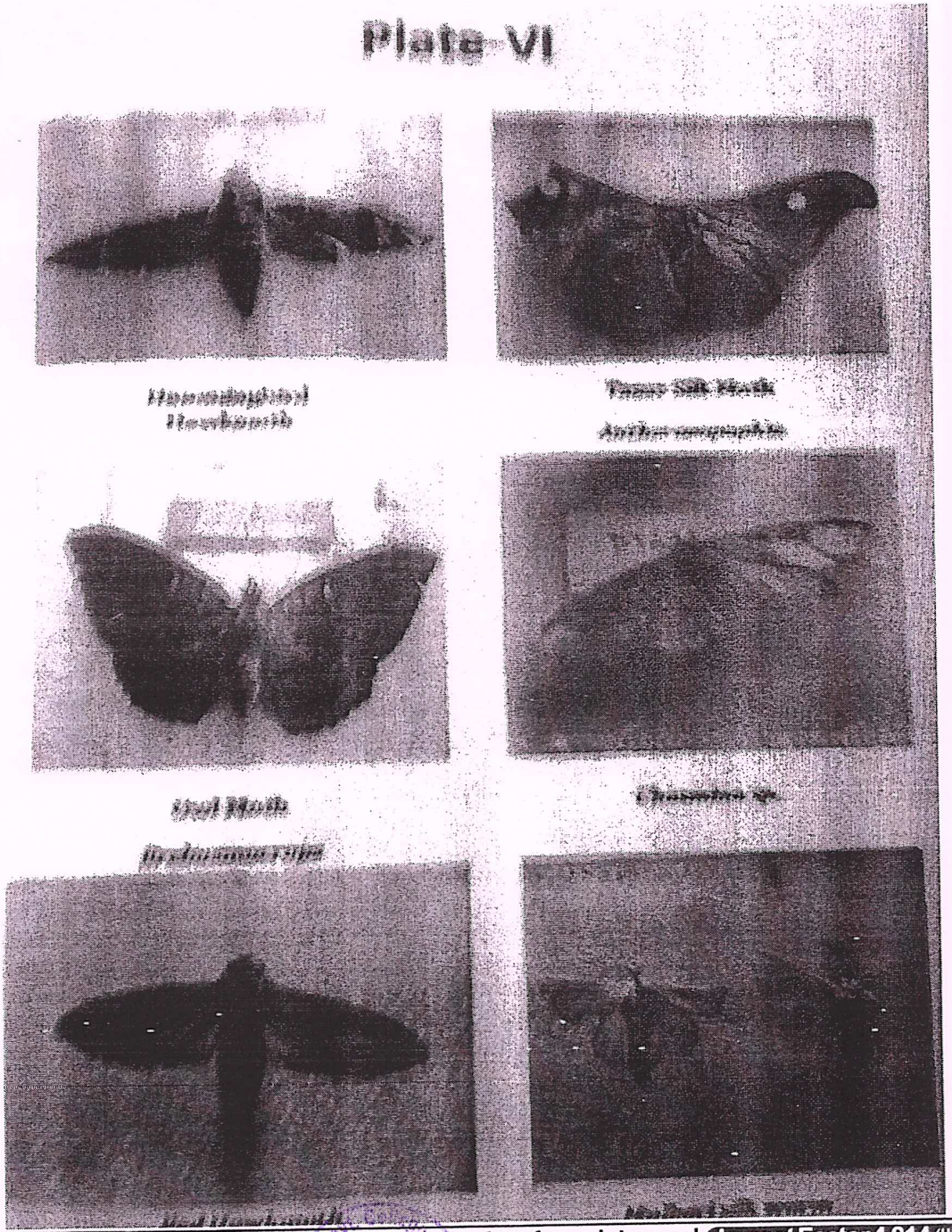


Plate – 7 Check list of moth

1) Eudocimafullonia
2) *Eudocima maternal*
3) Death's Head Hawk Moth *Rajendravittata*
4) Olepariciní
5) Agrinaargus
6) Owlet moth Spiramaretota

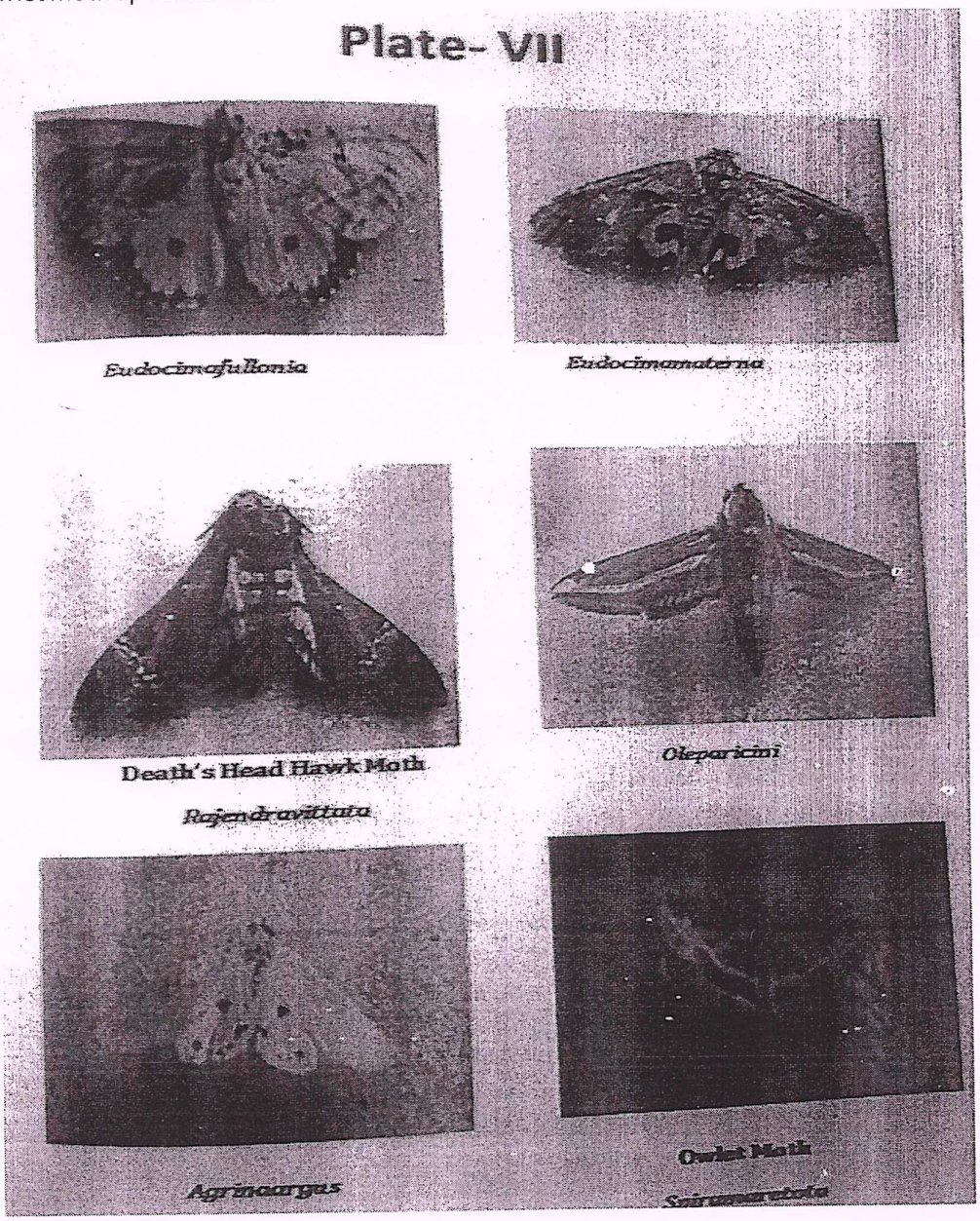
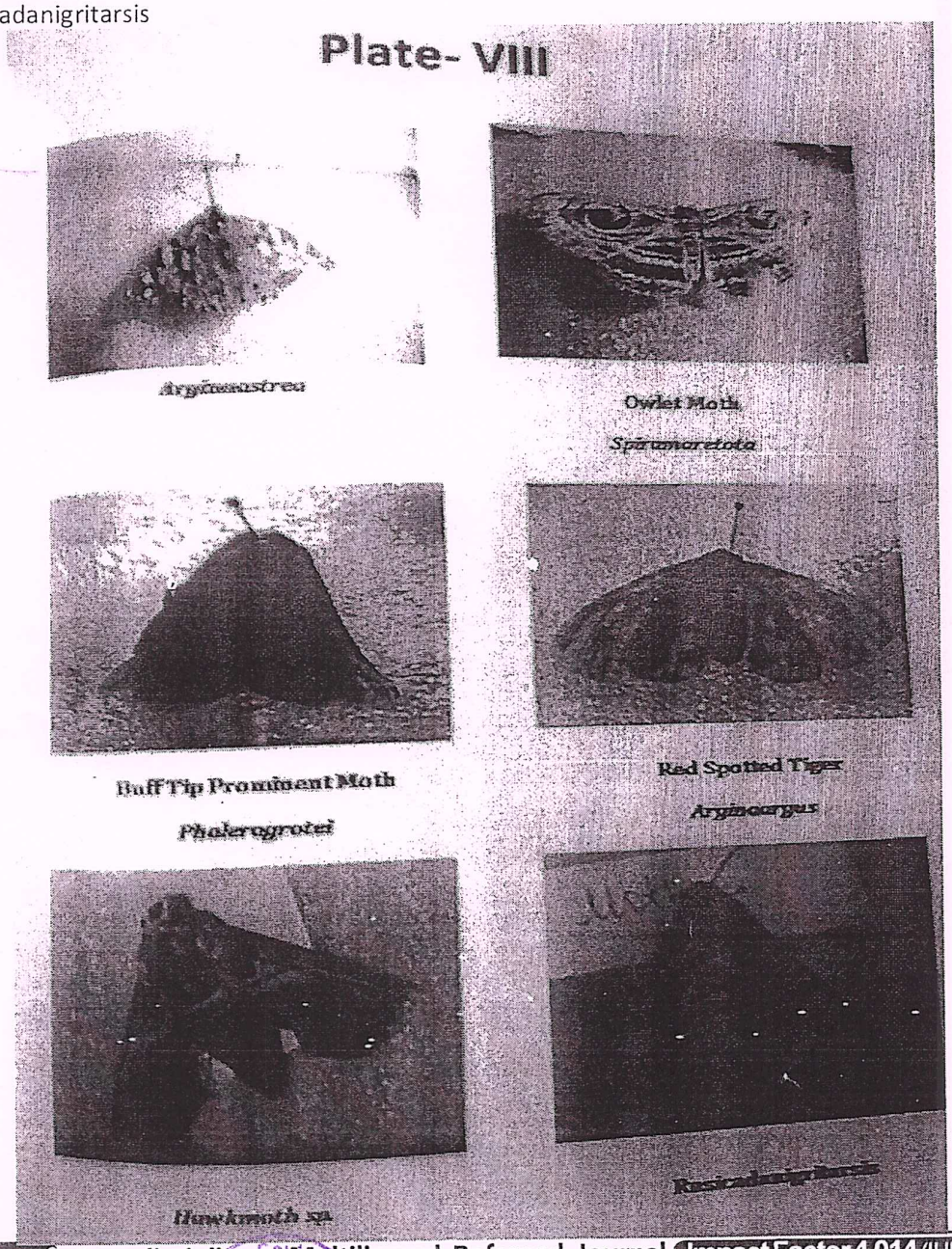


Plate – 8 Check list of moth

1)Arginaastrea
2) Owlet moth *Spiramaratota*
3) Buff Tip Prominent moth *Phaleragrotei*
4) Red Spotted Tiger *Arginaargus*
5) Hawkmoth sp.
6) Rusicadanigritarsis



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