

## **Pollinating Effects of Butterflies to Flowers of Marigold (Family: Asteraceae) In Ambikapur, Surguja District, Chhattisgarh**

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**Abstract:** Findings Display That The Butterflies Play A Significant Role In Cross-Pollination Of Marigolds At Gandhi Nagartehsil -Ambikapur, Surguja. Of 79 Individuals, 15 Species Of Butterflies Have Been Identified. Family Nymphalidae Has Maximum Number Of Species (8 Species), Followed By Lycaenidae (2 Species), Pieridae (2 Species), Hesperidae (2 Species) And Papilionidae (1 Species). These Butterflies Are More Active Between 10.00-13.00 Hours Of The Bright Sunny Day With Compare To Cloudy And Rainy Days. Colour And Fragrance Of Flowers Have An Influential Potentiality To Attract More Number Of Floral Visitors. The Flowering Period Of Marigold Is Throughout The Year If Cultivated As Butterfly Attractants In The Garden. The Maximum Number Of Butterfly Species Are Observed In The Months Of November And December As Floral Visitors. It Is Well Perceived That These Butterflies Prefer Flowers Of Family Asteraceae Than Any Shrub; However They Are Noticed As Sun Bathing On The Leaves Of Shrubs, Bushes And Tree Tops. Study Reveals That Flower Garden Supports The Highest Number Of Flying Flowers (Butterflies).

**Keywords:** Ambikapur, Nymphalidae, Lycaenidae, Pieridae, Hesperidae, Papilionidae, Asteraceae And Butterflies.

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### **I. Introduction:**

Butterflies And Flowers Are In Close Relation With Regard To Pollen Dispersal For Plant Propagation; On The Other Hand Butterflies Get Proteinous Substances For Successful Reproduction. Pollen Dispersal Is Dependent Not Only On Flying Flowers But Natural Phenomena, Aves And To Greater Extent Insects Groups Of Hemiptera, Diptera, Coleoptera And Hymenoptera. Earlier Works Done By Pollobidua and Jatinkalita (2014) On *Ixoracoccinea* In Nambor Wild Life Sanctuary, Assam Shows That The Visiting Hours Of Butterflies To Flowers Is Between 9.00 To 13.00 In The Months Of April To August. Pollinating Effect Is Striking Interaction Between Plants And Animals In Ecosystems Because It Is A Key Process In The Sexual Reproduction Of Most Angiosperms And Can Affect Directly The Plant Reproduction Success (Dafni, 1992; Kearns And Inouye, 1997). However Pollinating Effects Of Butterflies To Flowers Of Marigold Is Very Promising In Surguja District, Chhattisgarh. Study Of Butterflies On Marigold Is Not Undertaken In This Part Of Chhattisgarh, Thus Foreseeing The Economical Importance And Effects Of Butterflies To Marigold Is Intensely Done. Cultivation Of Marigold Is Done In Vast Majority Of Surguja For Selling, Religious Ceremony And Decorative Purposes.

### **II. Marigold:**

Tagetes Is A Genus Of Annual Or Perennial, Mostly Herbaceous Plants In The Sunflower Family Asteraceae. Tagetes Species Vary In Size From 0.1 To 2.2 M Tall. Most Species Have Pinnate Green Leaves. Blooms Naturally Occur In Golden, Orange, Yellow, And White Colors, Often With Maroon Highlights. Floral Heads Are Typically 1 To 6 Cm Diameter, Generally With Both Ray Florets And Disc Florets. In Horticulture, They Tend To Be Planted As Annuals, Although The Perennial Species Are Gaining Popularity.

Depending On The Species, Tagetes Species Grow Well In Almost Any Sort Of Soil. Most Horticultural Selections Grow Best In Soil With Good Drainage, Even Though Some Cultivars Are Known To Have Good Tolerance To Drought (Cicevanet *al.*, 2016).

### **III. Materials And Methods:**

Observation Of Floral Visitors At Ambikapur Was Done From January – March 2016 Between 10.00 Hours To 14.00 Hours, When There Was Good Sun Shine. Photographic Methods Were Used With The Help Of Cannon 1200 D Camera With 55-250 Mm Zoom Lenses And Vivo Y51L Camera Cell Phone. The Butterflies

Were Identified In The Field Condition Using The Keys Of Evans (1932), Wynter-Blyth (1957), Haribal(1992) And Kehimkar(2008).

#### IV. Study Area:

Ambikapur Is A City And Its Headquartering Is Surguja. Surgujais One Of The Oldest Districts Of The Indian State Of Chhattisgarh, In East-Central India. Ambikapur Is Also The Divisional Headquarters Of Surguja Division Which Consists Of The Five Districts Of Surguja, Korea, Balrampur, Surajpur And Jashpur. The Name Of The City Is Derived From The Hindu Goddess Ambika (Mahamaya) Devi, Who Is The Central Figure Of Worship In The Area. Ambikapur Is One Of The Largest Cities In Chhattisgarh. Ambikapur Is Located At 23°12'N 83°2'E. It Has An Average Elevation Of 623 Metres (2078 Feet). The District Is Spread Over A Forest-Rich Area Of 22,237 Km<sup>2</sup>. Total Population Of Ambikapur City Is 214,575 According To 2010 Survey. Density 110/Km<sup>2</sup> (280/SqMi). Most Of The District's Terrain Is Forested And Hilly. Natural Resources Include Bauxite, Forest Products And Paddy Crops.

#### V. Results And Discussions:

Results Show That The Highest Number Of Butterflies Is In Family *Nymphalidae* With 8 Species, Lowest Number Of Butterflies Is Seen In Family *Papilionidae*, Just 1 Species, *Lycaenidae* Has 2 Species, *Pieridae* Has 2 Species And *Hesperidae* Has 2 Species. Fig 1 And 5 Show That The Family *Nymphalidae* Has More Butterflies With Compare To Other Families And They Require Big Flowers To Land On Due To Large Body. During Bright Sunshine Hour Butterflies Visit Mostly Marigolds In Home Gardens And Flower Parks. Similar Studies Have Been Observed On *Ixoracoccinea* By Pollobidua and Jatinkalita (2014). It Is Well Studied That When These Insects Pollinate Marigolds, The Other Insect Groups Are Also Attracted To The Flowers For Nectars Thus The Nectar Dispersal Is Done To Far And Wide Places. Robust Bodied Butterflies Have Long Legs To Land On Flower Tops And Suitable Long Proboscis To Uptake The Nectars From Flower Bunches. Butterflies Stay On One Flower Hardly For A Minute Then Move On To Other Flowers, Thus The Pollinating Effect Is Much Faster By Butterflies And The Economic Growth Increases. During Study It Is Also Noticed That Common Guava Blue Deeply Berries Its Proboscis In The Flower For Nectar And It Stays On Flower For Longer Duration. When It Is Busy Nectaring, The Predators Take Chance Of It Like Spiders And Praying Mantids. These Butterflies Are More Active Between 10.00-13.00 Hours Of The Bright Sunny Day With Compare To Cloudy And Rainy Days. Colour And Fragrance Of Flowers Have An Influential Potentiality To Attract More Number Of Floral Visitors. The Flowering Period Of Marigold Is Throughout The Year If Cultivated As Butterfly Attractants In The Garden. The Maximum Numbers Of Butterfly Species Are Observed In The Months Of November And December As Floral Visitors.

Fig: 1

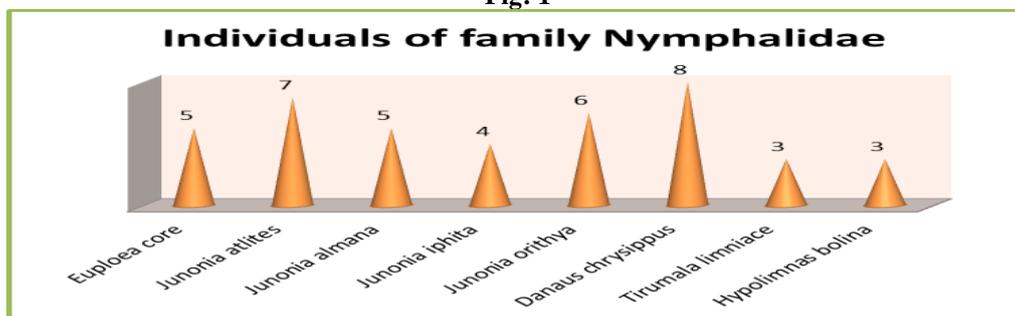


Fig: 2

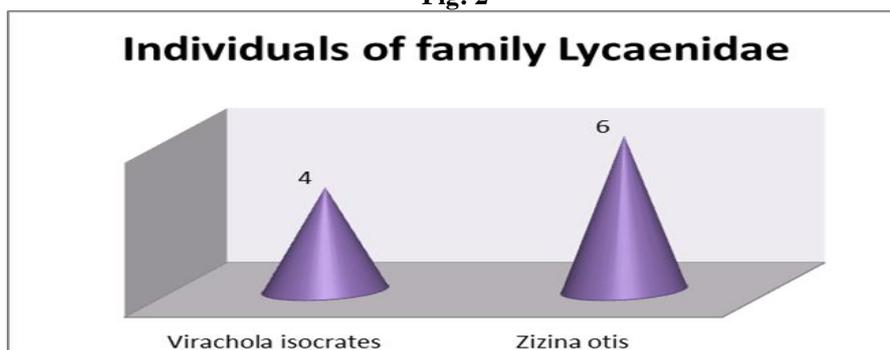


Fig 3

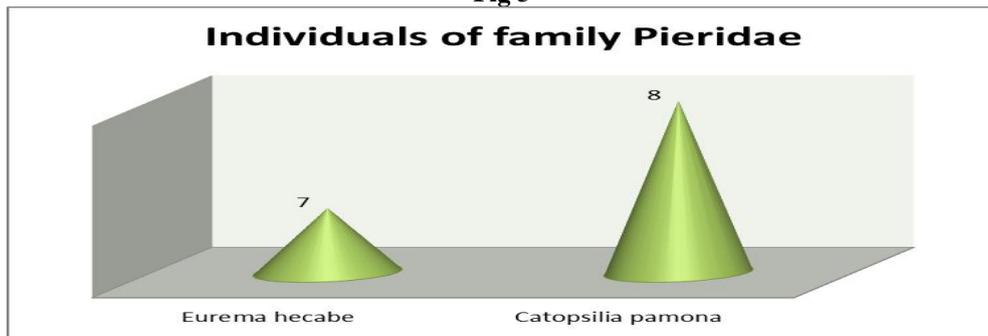


Fig: 4

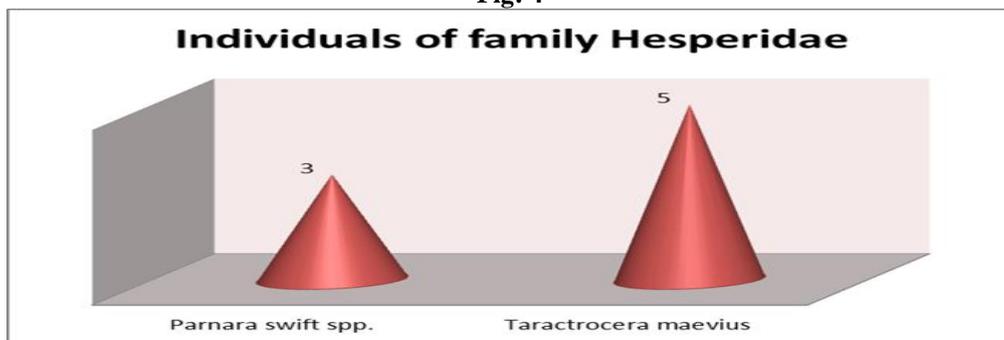


Fig: 5

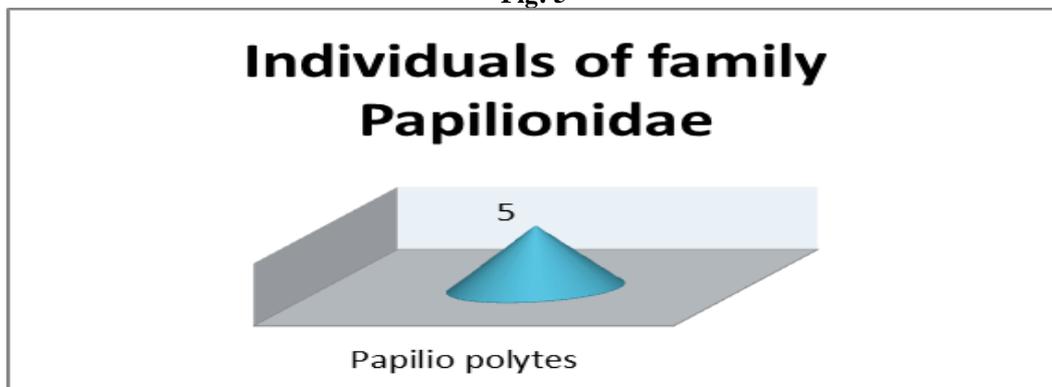
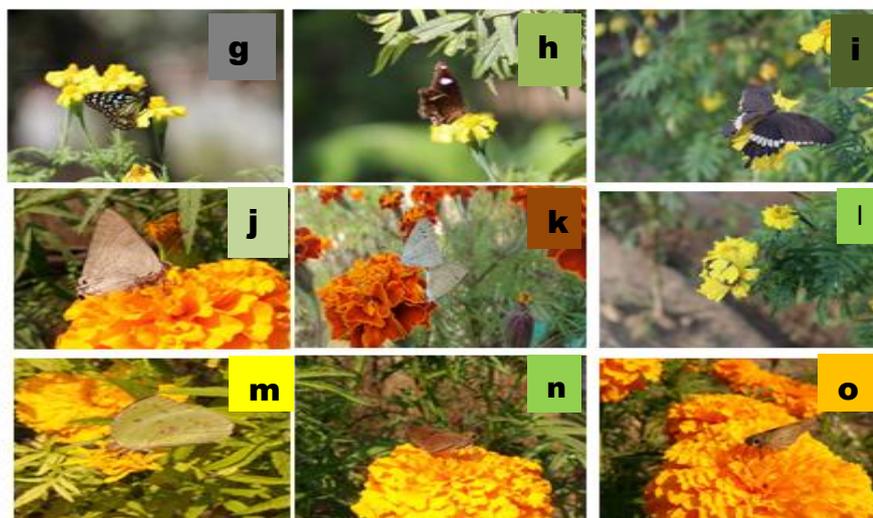


Plate: 1

### Flying flowers of marigold



**Plate: 2**



### **VI. Conclusion:**

Tagetes Is A Genus Of Annual Or Perennial, Mostly Herbaceous Plants In The Sunflower Family *Asteraceae*. Gardening Of Marigold Flowers In Ambikapur, Surgujadistrict, Chhattisgarh Is Very Common; Cultivation Brings Lot Of Income To The Cultivators. In Water Park Of Ambikaur, There Are Verities Of Floral Plants Which Are Pollinated By Butterflies And Other Insects. Butterflies Prefer Attractive And Large-Sized Flowers To Land On, Pollinate Them And Accumulate Nectars. The Objectives Of This Study To Gather Butterfly Activities. The Survey On Butterflies Can Be Done For Longer Period To Collect Other Information's Of Butterfly-Marigold Relationship.

### **References:**

- [1] Pollobi, D.P. Andkalita, J. 2014. Butterfly As Pollinating Insects Of Flowering Plants. *Journal Of Biological Science*, (14): 1-5.
- [2] Dafni, A. 1992. *Pollination Ecology: A Practical Approach*. New York: Oxford University Press.
- [3] Kearns, C.A. and Inouye, D.W. 1997. Pollinators Of Flowering Plants And conservation Biology. *Biological Sciences*, (47):297-307.
- [4] Evans, W.H. 1932. *Identification Of Indian Butterflies*. Croomhalm Ltd. Kent. (BI).
- [5] Wynter-Blyth, M.A. 1957. *Butterflies Of The Indian Region*, Bombay Natural History Society, Mumbai, India.
- [6] Haribal, M. 1992. *The Butterflies Of Sikkim Himalaya And Their Natural History* Published By Sikkim Nature Conservation Foundation, P. 1-217.
- [7] Kehimkar, 2008. *The Book Of Indian Butterflies* Published By BNHS.
- [8] Cicevan, R., Al Hassan, M., Sestras, A., Prohens, J., Vicente, O., Sestras, R.E. And Boscaiu, M. 2016. Screening For Drought Tolerance In Cultivars Of The Ornamental Genus *Tagetes* (Asteraceae). *Peerjournal*, P.21 - 33.

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