

# INSECTS BIODIVERSITY IN ADJACENT LOCALITIES OF ZUBAYDIAH THERMAL GENERATING STATION, WASIT GOVERNORATE

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**ABSTRACT :** Recently, the Zubaidiya Thermal Generating Station was installed in the Al Zubaydiah region, north of Wasit province; there are a harmful impact because the exhaust of the power generation towers, also the dust that associated with smoke seen falling on the environmental components and people's housing in the our field observations. So that, the paper was conducted to survey the insect terrestrial species around this station and specify the insect diversity around this station, which could be the basis for subsequent studies to determine the extent of environmental risks due to gases and pollutants emitted.

This investigation registered 50 species belonging to 30 families and 8 orders in group 1 (Distance from away station < 3km); while the numbers of the species were 36 within 21 families and 7 orders in group 2 (Distance from away station > 3km).

**Key words :** Biodiversity, insects, survey, Wasit, Zubaydiah.

## INTRODUCTION

There are many researchers have studied the emission of pollutants from power plants in different countries such as Pratil and Patil (1990) have estimated the degree of quantitative impact assessment of air quality for a thermal power station from the other hand, Mahmood and Kamal (2018) studied evaluation the air pollution around the thermal power plant, they registered many gases included carbon oxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen oxide (NO) and hydrocarbon (HC).

On the other hand; several efforts have been made to construe the impacts of air pollution on wildlife or biodiversity. In general, the investigations have concentrated on either specific ecosystems, or individual groups of animals and plants; while these investigations have all been useful in helping to identify the existence and scale of the problem relating to biodiversity and air pollution (Dudley and Stolton, 1996). Air pollution is an important factor in disrupting the environmental balance, which directly affects on abundance and diversity of species with the passage of time. The Gases have received great investigation, because of their impact on the atmosphere, animals, vegetation and human health; approximately 90% of human emissions in the atmosphere are gaseous (Godish, 1997).

There were many examples of terrestrial invertebrates damaged by this type of pollution, several

studies show a decline population of butterflies and moths in polluted atmosphere (Barbour, 1986). Heath *et al* (1984) stated the population of *Aphantopus hyperantus* (Linnaeus, 1758) (Lepidoptera : Nymphalidae) decline is greatest in areas of high SO<sub>2</sub> levels; the same applies to springtails (Collembola), the reduction in both number and diversity of in forests suffering air pollution were very obvious (Koposzki, 1992), whereas Petters and Mettus (1982) reported that wasps particularly sensitive to SO<sub>2</sub> pollution.

According to above, the our investigation was conducted to give a survey with a preliminary checklist to know the diversity of insects and their population at adjacent localities of Zubaydiah Thermal Generating Station, Wasit province; in order to be the basis for future comparison, through which to know the effect extent of the gaseous emissions caused by exhaust gas from this station on terrestrial insects diversity.

## MATERIALS AND METHODS

### Study location

Al-Zubaydiah Thermal Generating Station, Wasit Power Plant, is located in the north of Al-Zubaydiah city, Wasit province, Iraq. The areas adjacent to the station, especially those within a distance of 1-2 km is planted by several crops, including: wheat *Triticum* sp., barley *Hordeum* sp., rice *Oryza* sp., maize *Zea* sp. and several