

# THE EFFECT OF INDUMENTUM ON PLANT LEAVES IN CATCHING OR CONFINEMENT THE DUST FALL AND SULFUR OXIDES ATMOSPHERIC POLLUTANTS .

Khalid Dheyaa Abdul Wahid

Khazal Dhabua'a Wadi

\*Dept. of Biology- College of Science – Univ. of Diyala.

## ABSTRACT

This study was conducted in province of Diyala / region of tiles factories of Baladrous district as ( Industrial , Agricultural , and Residential) regions, in order to assessment the effect of leaves indumentum on confinement or catching the dust fall and sulfur oxides atmospheric pollutants. Five frequently samples of leaves were randomly obtained from perennial plants which were included ( *Eucalyptus spp.* , *Olea europea* , *Citrus spp.* , *Ziziphus spina-christi* , *Nerium oleander* , and *Phoenix dactylifera* ). Sampling process was conducted during winter -2008 & summer -2009, through two main stages, the first begins within the rise period of atmospheric dust , while the second sampling stage was conducted as soon as decline the dust. The laboratory tests for total grand leaves (٣٦٠) samples, were conducted in laboratories of Science College - University of Diyala which were include qualification and quantification of leaves indumentum further than measuring of leaves pollution with dust fall and sulfur oxides atmospheric pollutants, The analytical statistics for obtained results according to Randomized Complete Block Design (R.C.B.D.), were showed the following facts:

The higher density of indumentum on *Ziziphus spina-christi* leaves (٦.٣)/cm<sup>2</sup>, Has an important role in rise of catching average values of dust fall on its ,which were about (١١٣٤٠; ١٠٠٨٠; ٧٥٦٠) μg/cm<sup>2</sup> during winter and (١٠٧١٠; ٨١٩٠; ٦٣٠٠) μg/cm<sup>2</sup> during summer in ( Industrial , Residential , and Agricultural) Regions as respectively, as compared with lowest density of indumentum on *Nerium oleander* leaves (٢.٤)/cm<sup>2</sup> and decrease were the lowest of dust fall confinement average values of dust fall on its, which were about (٤١٢٨ ; ٣٦٤٨ ; ٢٦٨٨) μg/cm<sup>2</sup> during winter and (٣٨٨٨; ٢٩٢٨ ; ٢٢٠٨) μg/cm<sup>2</sup> during summer in ( Industrial , Agricultural , and Residential) Regions as respectively .

In spite the low density (٤.٣)/cm<sup>2</sup> of Scaly - Satellite indumentum on *Olea europea* as compared with Scaly indumentum on *Ziziphus spina-christi* leaves ,but it has a role in rise of accumulated average values of the sulfur oxides on it in Industrial region which were about (٠.٠١٦٩, ٠.٠١١٤) μg/cm<sup>2</sup> on leaves of *Olea europea* and *Ziziphus spina-christi* as respectively ,as compared with decrease average values on leaves of *Phoenix dactylifera* and *Nerium oleander* as respectively decrease on density of sulfur oxides on *Phoenix* leaves (٠.٠٠١٠ , ٠.٠٠٣٠) μg/cm<sup>2</sup> region ,while the lowest confinement values of sulfur

oxides accumulated on leaves were in Agricultural region which about  $(0.010, 0.0072) \mu\text{g}/\text{cm}^2$  on leaves of *Olea europea* and *Ziziphus spina-christi* as respectively As compared with decrease values on leaves of *Phoenix dactylifera* and *Nerium oleander* as respectively  $(0.006, 0.009) \mu\text{g}/\text{cm}^2$ .

The important role of gravity on dust settling due to the insignificant different of its speed settling between winter and summer sampling, while the settling of atmospheric sulfur oxides were affected by temperature variation, and that seems clearly through the rise of accumulated values of sulfur oxides on plants leaves during winter  $[(7.3 \pm 0.7); (6.0 \pm 0.7); (4.8 \pm 0.0)] \times 10^{-3} \mu\text{g}/\text{cm}^2$  as compared with summer  $[(6.3 \pm 0.6); (4.8 \pm 0.0); (3.6 \pm 0.4)] \times 10^{-3} \mu\text{g}/\text{cm}^2$  in Industrial, residential, and agricultural regions as respectively.