ASSESSMENT AND CONTROL OF SEED-BORNE BACTERIA OF SOME CROPS OF FAMILY *Cucurbitaceae*

By

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B.Sc. Agric. Sc. (Plant Pathology), Ain Shams University, 1998

M.Sc. Agric. Sc. (plant Pathology), Ain Shams University, 2004

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ABSTRACT

Khaled Ahmed Mohamed Zayed: Assessment and Control of Seed-borne Bacteria of Some Crops of Family *Cucurbitaceae*. Unpublished Ph.D. Thesis, Department of Plant Pathology, Faculty of Agriculture, Ain Shams University, 2010.

Seed samples of watermelon, muskmelon, squash, cucumber and pumpkin which obtained from different countries such as Netherland, USA, France, Spain, Japan, England, China, India , Israel, Italy, Greece, Chili and Egypt were recorded infection through 2005-2007 seasons. Cantaloupe samples recorded no infection during testing seasons. The highest infection was recorded with muskmelon samples through 2005-2007 seasons compared with the other crops, while watermelon and squash samples were showed a moderately infection compared with the other crops. Also, squash and cucumber samples which obtained from USA recorded infection through the three seasons, but the squash samples were more infected than the cucumber samples. According to morphological, cultural, physiological and pathogenicity characters; all isolates were identified as follows: *Pseudomonas syringae* pv. *lachrymans* and *Xanthomonas campestris* pv. *Campestris*, *Erwinia chrysanthemi* and *Bacillus subtilis*.

Population of pathogenic bacteria as externally was more effective than their population as internally on cucumber seeds, squash and watermelon samples population of *Pseudomonas* sp. and *Xanthomonas* sp. on and/or in all tested samples which obtained from Egypt, USA and Netherland. Population of *Pseudomonas* sp. was the most effective compared with other pathogenic bacteria. Mean while, population of *Pseudomonas* sp. was more detected on and/or in cucumber samples than the other seeds samples, but *Xanthomonas* sp. was more detected on and/or in squash samples than other seed

samples. Cucumber seeds were more efficiency than watermelon and squash seeds to borne and/or transmit pathogenic bacteria to seedling. Efficiency of transmission was more severe with seed samples which obtained from USA and Egypt than Netherland samples. Application of chemical and volatile compounds lead to decrease the percentage of infection compared with the control.

Volatile compound were more efficiency than chemical compounds to disease control. Chloroform and acetic acid as a volatile compounds or streptomycin and chloramphenicol as a chemical compounds were the most effective treatments to control the disease compared with the compounds.

Plasmacluster ions showed a great effect in inhibiting the bacterial growth and the population of pathogenic bacteria on cucumber seeds compared to control. Plasmacluster efficiency was increased with the increasing of the exposure period.

Key words: seeds, angular leaf spot, *Pseudomonas lachrymans*, chloramphenicol, koucide 101, oxychloride copper, streptomycin, acetic acid, acetone, chloroform, ethanol, Methanol, Plasmacluster ions.

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