EFFECT OF DUSTING ON BIOCHEMICAL CONSTITUENTS OF POTATO TUBERS DURING STORAGE

By

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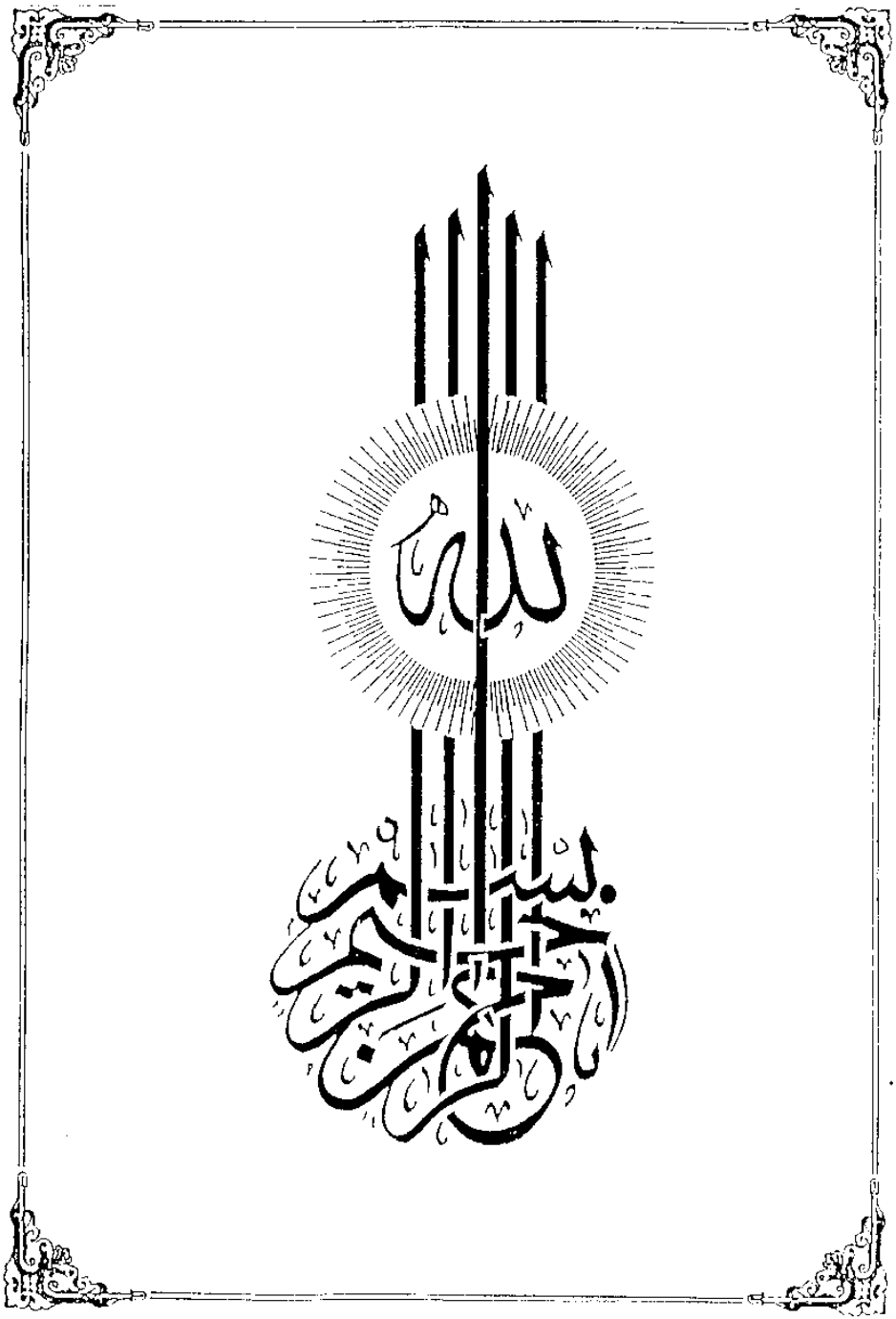

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1. INTRODUCTION

Potato is one of the world's most nutritious plant sources of food for human consumption. The ratio of proteins to carbohydrates is higher in potatoes than in many cereals and other roots and tubers, and the quality of potato proteins is higher than that of most other food crops. In developing countries, potatoes rank first in energy production per hectarz per day, significantly above the cereals. Egypt is considered one of the ten largest potato exporting countries. The amount exported reached more than 150.000 tons (World Potato Facts of the International Potato Center, Lima, Peru, 1982).

Potato "Solanum tuberosum L." is considered one of important vegetable crops in Egypt either on the scale of local consumption or export. During the period of storage, the biochemical constituents of tubers undergo various metabolic changes which usually cause some damage and affect their nutritive value particularly when sprouting starts to take place. Thus the problem is now to protect their keeping quality during storage with reasonable cost.

During the last fifty years, much consideration was given to the use of different insecticides to reduce the development of decay organisms and insects infestation. The use of insecticides has two objectives, firstly to protect the crops from related harmful pests and secondary to obtain a good tuber quality with higher yield.

The side effects of insecticides on plant need much studying the effects of insecticides and its metabolites on the biochemical compounds in plant. Food scientists are looking into the possibility of using insecticides that will inhibit development of decay organisms and insect infestation without appreciable effect on the quantity of crops yield.

The present investigation aimed to study the effect of three insecticides on some biochemical compounds in potato tubers stored for six months.

The first insecticide is Phostoxin, which constitutes the most common fumigants. Phostoxin releases a very pure hydrogen phosphide. Little work was carried out on the phytotoxic effect of repeated fumigation with Phostoxin.

The second insecticide is Thuricide, a biological insecticide, whose active ingredient is based on Bacillus thuringiensis Berliner. It is only active against the larval stage of Lepidoptera, which comprise many economically important insect pests. They may kill by infecting the insect and causing a fatal disease, or they may produce a toxic chemical an exotoxin called beta exotoxin or thuringiensin that poisons the insect.

The third insecticide is Sevin (N-methyl 1-naphthyl carbamate).