STUDIES ON PRODUCTIVITY, QUALITY AND STORABILITY OF JERUSALEM ARTICHOKE (*HELIANTHUS TUBEROSUS* L.) UNDER NORTH SINAI CONDITIONS

BY

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B.Sc. Agric. Sc. (Horticulture), Cairo University, 1992

M.Sc. Agric. Sc. (Vegetable Crops), Ain Shams University, 2001

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ABSTRACT

Mohamed Raef Hafez. Studies on productivity, quality and storability of jerusalem artichoke (*Helianthus tuberosus* L.) under North Sinai conditions. Unpublished Doctor of Philosophy, Thesis, Ain Shams University, Faculty of Agriculture, Horticultural Department 2005.

The study aimed to investigate the effect of planting dates, *i.e.,* February, March and April, on two jerusalem artichoke cultivars, *viz*. Fuseau and Local, and foliar spray with potassium at four rates, *viz*., check, 1%, 2%, 3%. The experimental design was a split split plot design

The obtained results indicated that April date, Local cultivar and foliar spray with potassium at 3% showed significant increases in plant height, number of branches, fresh and dry weight of plant, average tuber weight and average tuber size. Check plants grown in February planting date showed the lowest values in these characters.

The highest values of total tuber yield were attributed to April date and foliar spray with potassium 3 %. Check treatment of Fuseau plants exhibited the lowest values of tuber yield, whereas, Local plants applied with potassium at 3% showed the highest values.

When the Local cultivar was planted in April and treated with potassium treatment at 3%, significant increases in average tuber weight, tuber size, inulin, carbohydrate and total sugar were detected compared to the other treatments.

Check plants showed the highest value of Na content and the lowest value of K content, whereas treatment with K

at 3% showed the highest values of K, inulin, carbohydrate and total sugar content.

The highest values of N, P and K were obtained with potassium at 3%. It could be recommended that using Local or Fuseau cultivar in April planting date and spray the plants by K at 3% improved tuber yield and tuber quality under North Sinai region.

After 30 days from room storage, the interactions among Local, April planting date and potassium at 3% showed significant effect in loss of weight, inulin, total and reducing sugars and carbohydrate content. Whereas, after 30 days from cold storage, February planting date, Local cultivar with check foliar spray treatment recorded highest value in shrinkage. On the other hand, April planting date, Local cultivar with k at 2% gave the highest value of decay.

Key Words: Jerusalem artichoke, Cultivars, Potassium, Tuber Yield, Quality, Planting date, Cold storage, Room storage

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دراسات على الإنتاجية والجودة والقدرة التخزينية للطرطوفة تحت ظروف شمال سيناء

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