INTRODUCTION

Potato (Solanum tuberosum L.) is one of the most important vegeatble crops grown in Egypt. The total area of potatoes in 1997 reached 196495 (*)fad. from which 76009 and 120487fad with an average yield of 9.8 and 8.8 ton / fad. were grown in the summer and winter planting respectively.

Potato plants were grown mainly in spring and winter seasons in Egypt for local consumption, industrial use and export to the Arabian and European Countries. So, great efforts have been done to increase the cultivated area and also to increase the tubers yield and improve the quality through the introduction of new cultivars suitable for achieving the aim i.e., suitable for processing , local consumption and production of some cultivars for export to European countries through the periods of December to May.

The processing of potato for chips and french fries industry needs tubers of medium (35-55mm in diameter) or large size (more than 55mm in diameter) with high dry matter content, as well as low content of reducing sugars. So, we need many cultivars of potatoes to suitable for processing of chipsy under new sandy soil. So, this trial was performed to investigate the effect of different NPK fertilization levels within seven cultivars in the first experiment on plant growth, chewical composition of plant foliage, tuber yield and its components, chemical composition of tubers and cooking quality of tubers for processing. And also to elucidate in the second one the effect of planting method, and spacing within the same used cultivars in the first trial on plant growth, tuber yield and its components, as well as its chemical composition and quality for processing of potato tubers for chips.

(*) Cited from the economic and statistical Dept. Ministry of Agric., Egypt.