INTRODUCTION

In the last ten years, poultry industry in Egypt and chicken, in particular, depends mainly on some foreign breeds while local breeds are neglected. Although our local breeds (Fayoumi, White Baladi, Dandarawi, Dokki-4, ...etc) are more adapted for the Egyptian environmental conditions, they were not subjected to intensive genetic improvement studies. Dokki-4 chickens, for instance, could be easily sexed at hatching (auto-sexing) and it is characterized by white skin and shanks. It has specific weight and gain as well as it has high feed conversion (El-Itriby and Sayed, 1966; Abd El-Gawad, 1969). It also has superior meat qualities compared to other local breeds such as Fayoumi and White Baladi. Moreover, its meat has an acceptable taste for the majority of the Egyptian consumers (Abd El-Gawad, 1969). Thus, these reviewed estimates on Dokki-4 could be an advantage for encouraging the poultry breeders in Egypt to utilize this breed in meat production. It is worthy, therefore, for the chicken breeders in Egypt to give more effort in carrying out selection programmes on this breed in order to enhance its rate of growth.

Body weight and rate of gain in weight are major factors in producing white meat from a certain local breed of chicken. In addition, the importance of additional genetic information of growth traits in broilers of local breeds is needed (specific for daily gain, absolute gain and relative growth rate). This is because the available genetic information concerning the inheritance for these traits (or correlations among them) is little.

The purpose of the present study was to quantify the average genetic, phenotypic and environmental variation and covariation of growth traits in Dokki-4 chicks and to assess the direct and correlated response expected from selection for these traits. Non-genetic aspects (i.e. hatch, sex and hatch x sex interaction) were also studied in order to correct for their influence on the growth traits to reach an accurate critical genetic appraisal for this native breed.