

دراسة على اختلاف الوراثة المناعية في الدجاج عاري الرقبة وطبيعي الترييش

رسالة مقدمة من

علي نظمي علي حسن

بكالوريوس علوم زراعية (إنتاج دواجن) ، جامعة عين شمس ، 2001

للحصول على

**درجة الماجستير في العلوم الزراعية
(تربية دواجن)**

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وقد تمت مناقشة الرسالة والموافقة عليها

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INTRODUCTION

Poultry industry in developing countries is facing many challenges. Diseases, unfavorable circumstances and bad management are major factors resulting in economic loss in broiler and layer sectors. Diseases play major role in the poultry industry because they lead to losses in commercial production. A hot environment is one of the important stressors in poultry production. The resultant heat stress comes from the interaction among air temperature, humidity, radiant heat and air speed, where the air temperature plays the major role. Nutritional strategies aimed to alleviate the negative effects of heat stress by maintaining feed intake, electrolytic and water balance or by supplementing micronutrients such as vitamins and minerals to satisfy the special needs during heat stress have been proven advantageous. They increase management costs, lead to production losses and raise humans concerns. Fortunately, there are major genes such as naked neck (Na), frizzle (F) and dwarf (dw), which play an important role in alleviating heat stress. The naked neck (Na) gene reduces feather mass by about 20 and 40% in heterozygous (Nana) and homozygous (NaNa) birds, respectively compared with fully feathered counterparts. The Na allele can increase breast meat production especially at high ambient temperatures. The lower feather mass increase the effective surface of heat dissipation and increase the sensible heat loss from the neck. Also, the naked neck gene should be considered for industrial broiler production in hot climates. The major genes are believed to confer not only adaptability to the tropical climate, but also resistance to diseases.

Reports on the influence of major genes, such as naked neck gene, on immunocompetence of chicken are few. From such view, this study was designed to evaluate the effect of naked neck (Na) gene in a single or double state on productive performance and immunocompetence measurements of chickens under prevailing conditions of Egypt.

REVIEW OF LITERATURE

1. Phenotypic characters

1.1. Body weight and body weight gain

During the spring and summer seasons, **Cahaner *et al.* (1992)** observed that Nana broilers had heavier body weight gain by about 3% compared to normally feathered siblings. Also, this advantage is almost tripled at a constant high temperature of about 32°C.

From 8 to 12 weeks of age, **Darwish *et al.* (1992)** reported that the body weight of homozygous naked neck (NaNa) genotype was significantly heavier than those of both heterozygous (Nana) and homozygous recessive (nana) genotypes.

Under summer season of Egypt, the naked neck birds (NaNa and Nana) had heavier body weights than that of normally-feathered ones (nana) in both sexes from 4 to 16 weeks of age (**Fathi, 1992**).

Cahaner *et al.* (1993) found that fast-growing naked neck broilers are advantageous over their normally feathered sibs at a constant ambient temperatures ranged from 24 to 32°C.

Deeb and Cahaner (1996) stated that the advantage of the naked neck birds appears at high ambient temperature for growth rate.

Singh *et al.* (1996 & 1998) studied the effect of the naked neck allele on the growth, feed efficiency and livability of two broiler strains (white and colored plumage) from hatching to 6 weeks of age under fluctuating temperatures in both winter and summer seasons, they reported that, the naked neck genotype in both strains was less reduction in growth rate, better feed efficiency and improved livability, especially under summer season. At moderate ambient temperature (20°C), **Hussein *et al.* (2000)** concluded that the body weights at 36 and 40 weeks of age for naked neck females were significantly lighter than that of normally feathered counterparts.

Under low ambient temperature, during winter season of Egypt, **Galal *et al.* (2000)** found that the body weight at sexual maturity of