EFFECT OF USING FOOD INDUSTRIES WASTES IN RATIONS ON THE PRODUCTIVE PERFORMANCE OF LACTATING ANIMALS

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B. SC. Agric. Sci. (Animal Production),
Cairo Univ., 1991

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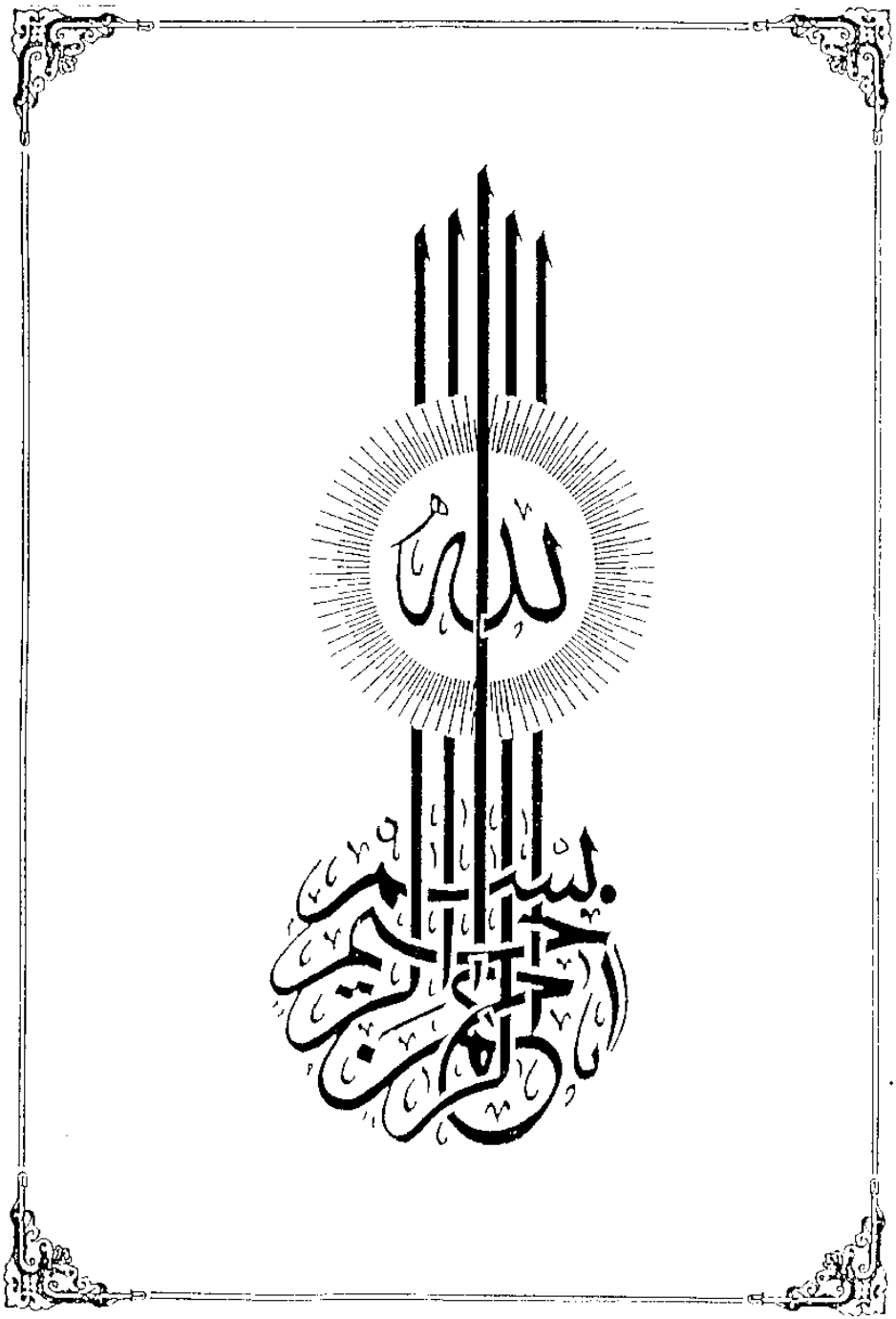

Approval Sheet

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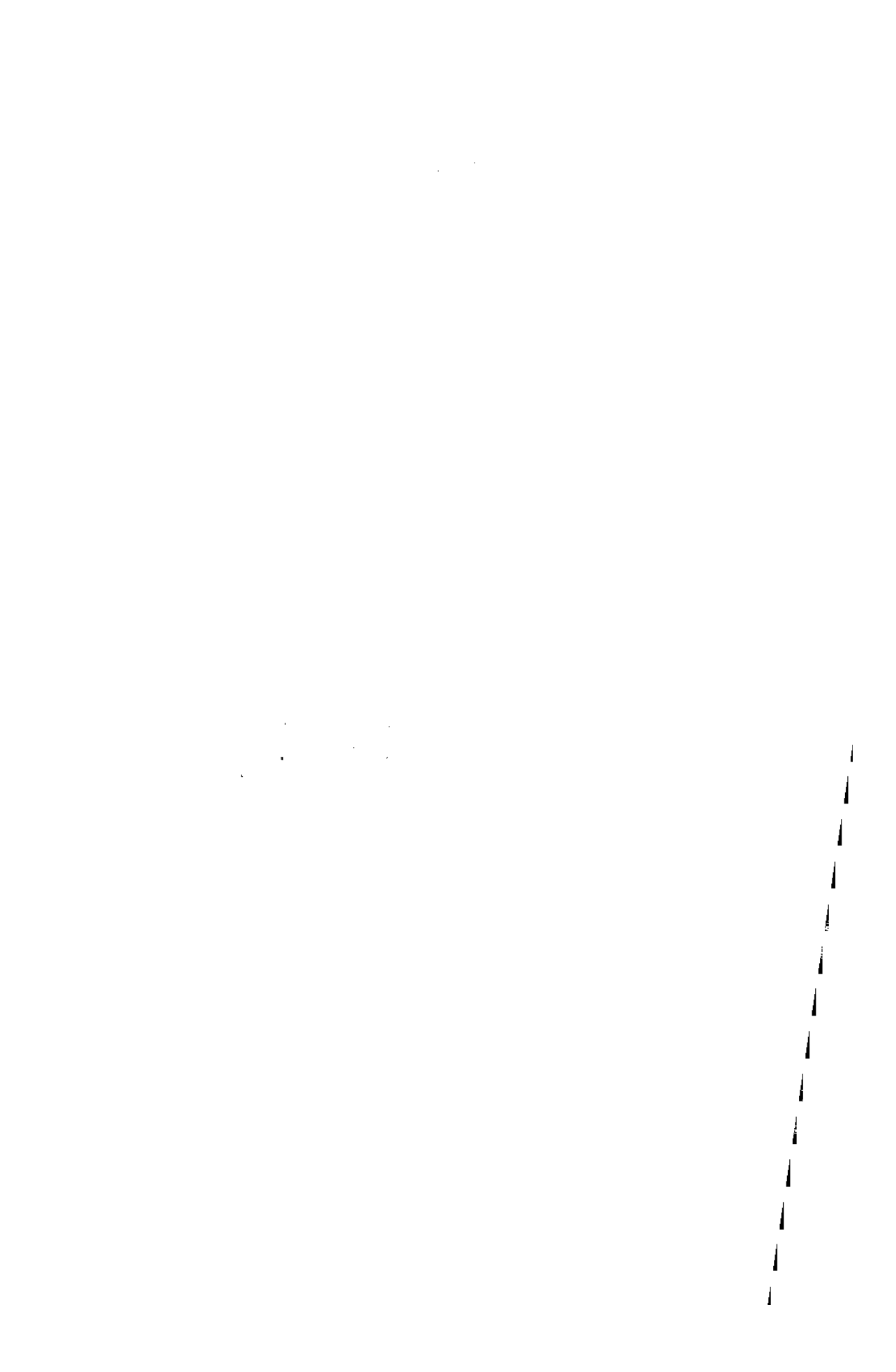

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ABSTRACT

Osama Hefeny Abd El–Shafy. Effect of using food industries wastes in rations on the productive performance of lactating animals. Unpublished Master Thesis. Animal Production (Animal Nutrition). Dept. of Animal Production, Fac. of Agric., Univ. of Ain Shams, 1999.

Nine combinations, in which agr-industrial by-products replaced from 0 to 90% of the concentrate feed mixture (on DM basis) were tested for in vitro dry matter and organic matter disappearance. IVDMD values of the different combinations containing from 40 to 70% wastes were nearly similar, they ranged between 61.86 to 65.94%. The lowest value of IVDMD (52.5%) was recorded for the mixture of 10% wastes. IVOMD values for mixtures containing from 50 to 70% wastes were similar.

The digestibility trail involved three groups in which mature bucks received control ration (zero wastes), T_1 (30% by products) and T_2 (60% by products). Animals were offered the experimental rations for a period of 28 days. Rations were offered with a level of 3% of LBW.

Results indicated that absolute DM intake for animal group fed ration 3 (60% wastes) was slightly higher ($p > 0.05$) than those recorded for control and T_1. There were no significant differences among the three groups for DM intake either as head/day or as / $w^{0.75}$. The digestibility coefficients of DM, OM, CP, CF, EE and NFE increased as the level of agro-industrial-by products in the rations increased. The differences between treatments were not significant regarding EE and NFE. Moreover, as the level of agro-industrial by-products increased, the TDN and SE of the rations were significantly ($p < 0.05$) increased. As the level of by-products increased in the rations, ruminal pH insignificantly decreased, however, TVFA's, NPN, NPN as % of TN, NH_3-N and NH3-N as % of NPN insignificantly increased with increasing by-products in the diets. Serum TP, albumin, globulin, A/G ratio, alkaline-phosphate, total lipids and glucose were insignificantly higher in T_2 than those of control and T_1. However, T_1 was insignificantly higher for urea, GOT and inorganic phospharus than those of control and T_2.

The feeding trail involved three groups in which lactating goats received control (zero % by-products), T_1 (30% by-products) and T_2 (60% by-products) by using 3 × 3 Latin square design. Milk samples were collected in the last 3 days of each period (3 periods of 35 days each) for chemical analysis. Samples, of rumen liquor (zero, 3 and 6 hr.) and blood were collected 4 hrs. after feeding (only one time) in the last day of each period for chemical analysis. Milk yield and 4% FCM were higher insignificant with by-products treatments than with control. Chemical analysis of milk showed a slight increase in fat, TS, lactose, TP and ash content in the treated animals. Daily yield of fat, TS, SNF, TP, lactose and ash were insignificantly higher In treated animals than control. Fatty acids composition of milk fats of goats fed by products had significantly higher concentrations of C_{10}, C_{12}, C_{14}, iso C_{16} and C_{18} acids than that of control. However, the concentrated diet significantly increased $C_{16:1}$ and $C_{18:1}$ fatty acids. Results of rumen liquer analysis showed that TVFA's, TN, NPN, NPN as % of TN, NH3-N and NH3-N as % of NPN were insignificant higher for by products treatments than control. However, pH value was insignificant higher in control ration than those of treated rations. There were no significant differences in serum albumin, A/G ratio, GOT, GPT, Alkalase, glucose and total lipids for treated and control groups. Serum TP and globulin were significantly higher ($p < 0.05$) in the treated groups than control, while urea was significantly lower ($p< 0.05$).

The results of the present study concluded that replacing up to 60% of the concentrate feed mixture with some agro-industrial by-products improved the productive performance of the lactating goats, regarding milk yield and composition.

Key words: Agro-industrial, by-product, in-vitro, in-vivo, lactating goats, milk production, rumen liquor .

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