

ACTION OF PECTINE AS ADDITIONAL NUTRITIVE IN FIBROUSE

DIETS FOR PIGS.

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The pectin substances are heterogeneous - - - glucides formed by mixtures of polisaccharides of high molecular weight (gum, mucilages and pectins) and which intervene in the - - - constitution of the cellular wall of vegetables specially of fruit and tuberculars. Pectin has a high nutritive value, with a true digestibility of 98% (Van Soest, 1969). Amongst the effects caused by the consumption of the above mentioned substance, the following has been discovered:

- 6 to 36 g/daily in humans produce minimum changes in bowel habits. (Cummings, 1979; Lei, 1980; Spiller, 1978).
- 2.4 g/daily in humans increased the stool output by a 33%, but it disappeared during its passage through the gut as the result of bacterial fermentation (Cummings, 1979).
- It brings down the level of glucemia in humans. (Jenkins, 1977; Johnson, 1980)
- It possesses hypercholesteral properties in human serum (Jenkins y col. 1975); in rabbit serum (Borenson, 1975); in the serum and liver of rats (Keys, 1961) and in the juice of egg and fowl meat (Rotenberg, 1977); these effects may be due to a decrease, either of the endogenous volume of cholesterol or of its intestinal absorption.

This work is to investigate the effect which the addition of 2 and 3% of pectin produces in pigs fed with cellulose diets. As a - - - fibrouse diet, a brewery by-product called malt sprout, was used, and whose effect has already been shown by the authors in other scientific papers, showing that the - - - consumption of this malt delayed the speed of growth, increased the consumption of feed, and consequently by with a loss of feed - - - efficiency, but, what is more important, it brings about a lessening of back fat and showing a vast improvement in the quality of the carcass (Lagrecia, L. 1978-1980; Marotta, E. 1978-1980).

40 pigs, with an average initial weight of 41,5 \pm 1,5 kg. and up to an intermediate weight of 66,4 \pm 3,2 kg. (growth period) and from this weight up to 103 \pm 1,5 kg. - - - (finishing period), weight in which the animals were killed, these 40 pigs were divided into two groups submitted to two different treatments which consisted of the administration of a diet consisting of a mixture of cereals (maize, sorgum and barley) in proportions which ranged from 67 to 75%, with the addition of malt sprout in a 13% and 20% in each treatment respectively. The experimental treatment were given a further 2 and 3% of pectin in each period. The chemical evaluations of crude fibre were of a 4,3 and 5,6%; the crude protein was of 17% and the digestible energy was of 3115 and 3062; 3116 and 3064 Kcal/Eg. of feed for each period of the treatments with and without pectin respectively.

Between the average 41 and 66 kg. live weight of the pigs and the consumption of 2,5 g. of pectin daily per kg. metabolic weight ($W^{0.75}$) there was a highly - - -

significant growth increase ($P < 0.01$) which represented a 21,5%, the feed consumption increased by 4% and the efficiency of the feed grew by 17%.

The increase of the energy consumption during this period in relation to the metabolic weight ($W^{0.75}$) was significant ($P < 0.05$) for the experimental treatment the consumption of cellulose being highly significant ($P < 0.01$) for the same treatment. Of the average 66 to 103 kg. live weight, the daily consumption of 2,1 g. of pectin per kg. metabolic weight produces a highly significant reduction ($P < 0.01$) in the duration time of the experiment which in turn brings about a daily gain of 23,4% and which was also highly significant ($P < 0.01$), and an increase in the consumption of an 11% and an improvement of 10% in the feed efficiency. The consumption of digestible energy in relation to the - - - metabolic weight ($W^{0.75}$) in the pigs in the second period was highly significant ($P < 0.01$) for treatment CP. as was also the consumption of cellulose ($P < 0.01$) of the animals in the same treatment.

The addition of a 2% of pectin in a diet with a 4% of crude fibre for pigs with an average live weight of 42 to 66 kg. produced a daily increase of 713 g. with a rate of feed conversion of 3,6 kg. per kilogram produced as against 587 g. and 4,2 kg. - - - respectively for the control treatment - - - (without pectin).

The addition of 3% pectin to a diet with a 5% of crude cellulose for pigs who average a live weight of 66 to 103 kg., produced a daily gain of 749 g. and a conversion rate of 4,1 kg. per kilogram produced as against 607 g. and 4,5 kg. respectively for the - - - control treatment. The average thickness of back fat was 19,8 mm. for the animals - - - consuming pectin and 20,6 mm. for the control treatment.

By this we can see that in small quantities pectin increases the rate of growth, benefits greatly the efficiency of a cellulose diet and contributes favourably to the - - - diminishing of the back fat.

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