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UPORABA BUTIRATA U PREHRANI SVINJA USE OF BUTYRATE IN PIG NUTRITION

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SAŽETAK

Alternativne mogućnosti stimulisanja rasta postale su izazov i potreba nakon zabrane uporabe antibiotika i u tom smislu pokazali su se značajni rezultati enzima, probiotika, prebiotika, ljekovitog bilja, eteričnih ulja, ali i organskih kiselina i njihovih soli.

Poznato je da se organske kiseline već desetljećima koriste u hrani za životinje, uglavnom radi konzerviranja hrane, zbog smanjenja pH i puferskog kapaciteta, kao i antibakterijskih i antifungalnih učinaka u hrani. Ovi se učinci butirata manifestiraju i u gastrointestinalnom traktu i deluju na inhibiranje gram-negativnih bakterija (*Salmonella* spp., *Escherichia coli*, *Campilobacter jejuni*).

Cilj pokusa bio je ispitati utjecaj i stimulirajući učinak natrij-butiratnog proizvoda u prehrani svinja. Eksperiment je organiziran u kontroliranim uvjetima eksperimentalnim kontrolnim skupinama na komercijalnoj farmi svinja i trajao je 54 dana. Svinje korištene u pokusu bile su podijeljene u 3 skupine (po 16 prasadi), jedna kontrolna i dve eksperimentalne koje su hranom dobijale preparat natrijum butirata u različitoj količini. Tijekom eksperimenta praćeni su rezultati proizvodnje i zdravstveno stanje prasadi.

Učinkovitost proizvodnje bila je statistički značajno bolja u pokusnim skupinama u odnosu na kontrolnu skupinu, a najbolje rezultate pokazala je skupina prasadi E-I (dodan hrani pripravak u količini od 3 kg/t). Određeni su parametri prinosa mesa, pH u tankom i debelom crijevu, kao i morfometrijski parametri za ileum i cecum te mikrobiološke analize himusa crijeva svinja. Utvrđeno je da je prosječan broj bakterija *E. coli* statistički značajno viši u uzorcima sadržaja ileuma, i cekuma kontrolne skupine prasadi u usporedbi s eksperimentalnim skupinama. Utvrđene su statistički značajne razlike između morfometrijskih parametara eksperimentalnih u odnosu na kontrolnu skupinu prasadi.

Analiza temeljnih financijskih pokazatelja pokazuje da je uporaba natrijeva butirata u prasadi ekonomski isplativa.

Ključne riječi: prehrana svinja, butirati, proizvodne performanse, mikrobiologija creva, morfometrijski parametri

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ABSTRACT

Alternative growth stimulating options have become a challenge and need after banning the use of antibiotics and in this sense have been shown significant results of enzymes, probiotics, prebiotics, healing herbs, essential oils, but also organic acids and their salts.

It is known that organic acids have been used in animal feed for decades, mainly for food preservation, due to pH and buffer capacity reduction as well as antibacterial and antifungal effects in food. These effects of butyrate also manifest in the gastrointestinal tract and act to inhibit gram-negative bacteria (*Salmonella* spp., *Escherichia coli*, *Campilobacter jejuni*).

The aim of the experiment was to investigate the effect and the stimulating effect of sodium-butyrate in the pig's diet. The experiment was organized in controlled conditions for experimental control groups on a commercial pig farm and lasted for 54 days. Pigs used in the experiment were divided into 3 groups (16 pigs), one control and two experimental, which provided the sodium butyrate preparation in a different amount of food. During the experiment, the results of the production and the health of piglets were monitored.

Production efficiency was statistically significantly better in the trial groups compared to the control group, and the best results were shown by a group of piglets E-1 (3 kg/t feed supplement). The parameters of meat yield, pH in the thin and thick intestine, as well as the morphometric parameters for ileum and cecum and the microbiological analysis of the intestinum were determined. It was found that the average number of bacteria *E. coli* was statistically significantly higher in the samples of the ileum content, and the cecum of the control group of piglets compared to the experimental groups. Statistically significant differences were found between the morphometric parameters of the experimental groups compared to the control group of piglets.

An analysis of fundamental financial indicators shows that the use of sodium butyrate in piglets is economically viable.

Keywords: pig nutrition, butyrates, production performance, microbiology of the intestine, morphometric parameters