Pengaruh tempe terhadap pencegahan diare pada kelinci yang diinokulasi dengan escherichia coli

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Abstrak

Studi pengaruh konsumsi tempe sebagai sumber besi dan seng terhadap pencegahan diare telah dilakukan pada kelinci yang diinokulasi dengan E. coll.
Lima puluh satu ekor kelinci jantan berumur 8 minggu dibagi dalam tiga grup. Kelinci-kelinci tersebut masing-masing ditempatkan dalam sebuah kandang yang terbuat dari bambu, makan dan minum diberikan adlibitum.

Selama lima minggu, dua dari tiga grup diberi ransum 25 % dari kebutuhan normal sehari per ekor. Maksudnya supaya kelinci-kelinci tersebut menjadi kelaparan.

Grup kedelai dan grup tempe kemudian masing-masing diberi ransum kedelai dan ransum tempe selama empat minggu. Pada akhir minggu keempat, ketiga grup tersebut diinokulasi dengan bakteri E. coil serotipe 0126K71(B)H2 sebanyak 2x2x108 koloni.

Berat badan, kandungan seng dan besi dalam serum serta sIgA dari kelinci-kelinci tersebut ditentukan setiap akhir periode adaptasi, periode kelaparan, periode eksperimen dan beberapa hari setelah periode infeksi.

Hasilnya adalah sebagai berikut:

Berat badan, kandungan sang dan besi serum dari ketiga grup, sama pada akhir periode adaptasi. Berat badan dan kandungan besi dan seng dalam ransum grup kedelai dan grup tempe turun pada akhir periode kelaparan. Penurunan tersebut disebabkan karena ransumnya dikurangi.

Berat badan grup kedelai dan grup tempe masing-masing naik 35 % dan 41 % pada akhir periode eksperimen. Kenaikan berat badan dari kedua grup tersebut berbeda nyata. Kandungan seng dan besi serum grup tempe lebih tinggi dari pada grup kedelai. Hal ini mungkin karena absorpsi seng dan besi lebih balk pada grup tempe dari pada grup kedelai.

Kelinci yang diare pada grup kedelai 14 ekor dari 17 ekor; pada grup tempe 2 dari 17 ekor sedangkan pada grup kontrol 9 dari 16 ekor. Rata-rata lamanya diare untuk grup kedelai, kontrol dan tempe berturut-turut adalah 4.2, 2.9 dan 0.4 hari. Hal ini menunjukkan kelinci grup tempe lebih imun dari pada kelinci kedua grup lainnya.

Berat badan grup tempe dan kontrol sama pada akhir infeksi, tetapi tidak sama dibandingkan dengan grup kedelai yang nyata lebih rendah pada akhir periode infeksi. Kandungan seng dan besi serum grup tempe

lebih tinggi dari pada grup kedelai, tetapi antara grup tempe dan kontrol tidak berbeda nyata.

Tidak ditemukan slgA dalam kotoran kelinci pada tiap akhir dari periode adaptasi, kelaparan dan eksperimer.

Kandungan sIgA dalam cairan mukosa usus halus grup kedelai dan kontrol ditemukan tapi tidak pada grup tempe. Ditemukannya sIgA dalam cairan mukosa usus erat hubungannya dengan adanya infeksi. Pada kelinci-kelinci grup kedelai dan kontrol terjadi infeksi yang ditandai dengan timbuInya diare. Oleh karena itu sIgA ditemukan.

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The Effect of Tempe on Preventing Diarrhea of Rabbits Against Escherichia Coli Regular consumption of tempe as a source of iron and zinc on preventing diarrhea of rabbits inoculated with E. Coli has been studied.
Fifty-one male rabbits, 8 weeks of age were divided into three groups. All the rabbits were housed individually in bamboo cages, feed and drink were given ad libitum. During the following 5 weeks, 2 of the 3 groups were fed only 25 % of the average normal daily intake to cause starvation.

Soybean and tempe groups (of the starved rabbits) were fed with soybean and tempe rations respectively for four weeks before being infected. All groups including the control group at the end of the experimental period were inoculated with 2x2x108 colonies of enterotoxigenic E. coli serotype 0126K71(B)H2. Body weight, serum zinc and iron tents and sIgA of all the rabbits were determined at the end of the adaptation, starvation, experimental and infection periods.

The results were as follows:

During the adaptation period the feed intake was the same. The feed intake during the starvation period decreased to 25 % per rabbit per day for two groups. The feed intake of the soybean and tempe groups during the experimental period were almost the same, but changed during the infection period.

Body weight, serum zinc and iron of the three groups were similar at the end of the adaptation period.

Body weight, serum zinc and iron in two groups were reduced proportionally at the end of the starvation period. The decrease was caused by the reduction of the standard ration.

The body weight of the soybean and tempe groups increased with 35 % and 41 % respectively, at the end of the experimental period. The increase of the body weight between those two groups was significantly different. The serum zinc and iron of the tempe group were significantly higher than that of the soybean group. It could be concluded that the absorption of zinc and iron of the tempe group was better than that of soybean group.

The incidence of diarrhea in the soybean group was 14 of the 17 rabbits, the tempe group 2 of the 17 rabbits and 9 of the 16 rabbits in the control group. The average duration of diarrhea among the soybean, control

and tempe groups was 4.2, 2.9, and 0.4 days. This fact indicated that the rabbits in the tempe group were more immune than those in the other two groups.

The body weight of the tempe and control groups were similar but not compared with the soybean group which was lower at the end of the infection period. The serum zinc and iron level of the tempe group was significantly higher than that of the soybean group, but between the tempe and control groups were not significantly different.

There was no sIgA in the faces at the end of every three periods (adaptation, starvation and experimental periods).

The sIgA of the intestinal mucosa of the soybean and control groups was detected, but not of the tempe group. The presence of sIgA in the secretion of intestinal mucosal surface correlated well with recent infection. There was infection in the soybean and control groups as indicated by diarrhea therefore the slgA could be detected.