Short Communication

Detection of 1-Butanethiol in
Blood Plasma and Ileal
Contents of Different
Species of Animals

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1-Butanethiol could be identified in the blood plasma and ileal contents of laying hens fed with a commercial formula feed.¹⁾ This paper deals with the effects of the differences in the animal species and the feed on the formation of 1-butanethiol in the blood plasma and gastrointestinal contents.

Three growing pigs, two rabbits, one dairy cow and three rats were employed for the first subject. They were fed their respective commercial formula feeds, except that the rough-

age (corn silage and rice straw) was fed to the cow in the basal diet in addition to the concentrates from a commercial formula feed. For the second subject, three laying hens and two rabbits fed with a commercial formula feed for growing pig were compared with these animals

FIG. 2. Gas Chromatogram of Iodine-treated Carbon Disulfide Extracts of Blood Plasma, Rumen and Ileal Contents of a Dairy Cow (A, B and C) and Small Intestinal Contents of the Rat (D) Fed with Their Respective Feeds.

A, $\frac{1}{2}(\times \frac{1}{8})$, 2, 8×10^4 *; B, 3, 2, 8×10^4 ; C, 3, 2, 8×10^4 ; D, 3, 0.4, 8×10^4 .

* See Fig. 1.

(1), di-*n*-butyl disulfide; (2), *p*-cresol; (3), indole.

FIG. 1. Gas Chromatogram of Iodine-treated Carbon Disulfide Extracts of Blood Plasma and Ileal Contents of the Growing Pig (A and B) and the Rabbit (C and D) Fed with Their Respective Commercial Formula Feeds.

A, $\frac{1}{2}(\times \frac{1}{2})$, 2, 8×10^4 *; B, 3, 0.4, 8×10^4 ; C, $\frac{1}{2}(\times \frac{1}{8})$, 2, 8×10^4 ; D, 3, 0.4, 8×10^4 .

*The expression shows that the sample was extracted with one half volume of carbon disulfide, and 2 μ l of iodine-treated carbon disulfide extract was injected into the gas chromatograph, which was adjusted for a range and sensitivity of 8×10^4 . The numeral in parenthesis shows that the injection was carried out after concentrating the iodine-treated carbon disulfide extract to one half volume. (1), di-*n*-butyl disulfide.

FIG. 3. Gas Chromatogram of Iodine-treated Carbon Disulfide Extracts of Blood Plasma and Ileal Contents of the Rabbit (A and B) and the Laying Hen (C and D) Fed with a Commercial Formula Feed for Growing Pig.

A, $\frac{1}{2}(\times \frac{1}{2})$, 2, 8×10^4 *; B, 3, 0.4, 8×10^4 ; C, $\frac{1}{2}$, 2, 8×10^4 ; D, 4, 2, 8×10^4 .

* See Fig. 1.

(1), di-*n*-butyl disulfide.

fed with their respective formula feeds. Blood plasma samples were analyzed immediately after slaughter, and the collected gastrointes-

tinal contents were frozen and analyzed within a few days, according to the method reported in the previous papers.^{1,2)}

1-Butanethiol was detected in the blood plasma samples and in the rumen and small intestinal contents, irrespective of the animal species (Figs. 1 and 2). The figures of the rabbit fed with a commercial formula feed for growing pig (Figs. 3A and B) were qualitatively similar to those fed with their commercial formula feed (Figs. 1C and D). The figures of the laying hen (Figs. 3C and D) were qualitatively similar to those fed with their commercial formula feed (Figs. 1D and 2B in the previous paper¹⁾). 1-Butanethiol was detected in the blood plasma samples and ileal contents, irrespective of the feeds. In all experiments, indoles and phenols were the main putrefactive products in the cecal contents. The peaks for *p*-cresol and indole in Figs. 2B and C are noticeable.

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