EFFECT OF DIETARY LACTOSE SUPPLEMENTATION ON THE INTESTINAL ECOSYSTEM OF ADULT DOGS

BACKGROUND
- Whey is a by-product derived from cheese-making which is commonly used in swine nutrition.
- Due to the low ability of adult mammals to digest lactose (which represents 75% of whey powder), whey may act in adult dogs as a prebiotic but also display laxative properties.

AIM OF THE STUDY
In vivo evaluation of the effect of feeding adult dogs with increasing levels of lactose on their intestinal ecosystem.

MATERIAL AND METHOD
Diets: 14 adult dogs were fed a dry commercial diet that did not contain any prebiotic ingredients.

Feeding trial: After an adaptation period to the diet, all dogs received increasing doses of lactose (0.5, 1 and 2 g/kg BW/d). Each feeding period lasted 20 days.

Sample collection: A faecal sample was collected from each dog at the end of each feeding period for:
- Microbial analyses (by qPCR)
- Chemical analyses
- Data were analyzed by ANOVA. Linear and quadratic contrasts were used to determine the nature of the response to the feeding of lactose.
- Differences were considered statistically significant at P<0.05.

RESULTS

IN VITRO EVALUATION OF THE EFFECT OF A YUCCA SCHIDIGERA EXTRACT AND CHESTNUT TANNINS ON COMPOSITION AND METABOLISM OF CANINE AND FELINE INTESTINAL MICROBIOTA

BACKGROUND
Yucca schidigera and chestnut tannins extracts are naturally occurring plant substances:
- antimicrobial properties and antifungal/antiprotozoal activity;
- potential phytochemical compounds for reducing odor and toxic catabolites in dogs and cats faeces.

AIM OF THE STUDY
In vitro evaluation of the effect of adding a Y. schidigera extract and chestnut tannins on the composition and activity of canine and feline intestinal microbiota.

MATERIAL AND METHOD
Bacterial inoculum was obtained from fresh faeces collected from 5 healthy adult dogs.

- The effect of four treatments were tested:
  1) control diet (CTRL) with no addition of substrates;
  2) Yucca schidigera extract (YSE, added at a final concentration of 0.1g/L);
  3) chestnut tannins (CT, added at a final concentration of 0.3 g/L);
  4) YSE plus CT.
- Samples of fermentation fluid were collected after 6 and 24 h for the determination of:
  1) pH
  2) Ammonia
  3) Biogenic amines
  4) Volatile fatty acids (VFA)
  5) Volatile organic compounds (VOCs)
  6) Microbial analyses

Statistical analysis:
- Differences were considered statistically significant at P<0.05.

CONCLUSIONS
- Evidence of tolerance of lactose by dogs
- Reduction of some proteolysis parameters
- No strong evidence of prebiotic effects

CONCLUSIONS
- Reduction of some VOCs such as hydrogen sulfide and dimethyl sulfide
- Increase of p-cresol by CT in cats

CONTRIBUTIONS