Posters

Ileal endogenous flow of amino acids in the avian ileum is increased by protein sources with high fibre contents

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Background - Addition of purified sources of fibre to diets has been shown to increase the flow of undigested endogenous protein leaving the small intestine of pigs and poultry. No reports exist on the effects of high levels of fibre naturally occurring in feed ingredients, because until recently no method was available to estimate the ileal endogenous recoveries associated with specific feedstuffs. Guanidination is a novel technique that allows the quantification of endogenous flow generated by specific feed ingredients.

Objective - To measure the ileal endogenous flow of amino acids in broiler chickens fed diets containing casein, soybean meal, canola meal and cottonseed meal.

Design - The four ingredients were guanidinated and, assay diets based on dextrose and the guanidinated ingredients were offered ad libitum to three pens of 5-week old broilers for seven days and ileal digesta were collected. Endogenous flow was calculated using the homoarginine: amino acid ratios.

Outcomes - Ileal endogenous flows of protein and amino acids were lowest ($P < 0.05$) in casein, intermediate in soybean meal, high in canola meal and highest ($P < 0.05$) in cottonseed meal. The flows were correlated ($P < 0.01$) with dietary fibre levels.

Conclusion - Endogenous flows of protein and amino acids in the avian ileum were significantly increased by protein sources with high fibre contents.

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Vietnamese traditional fermented foods as a source of novel probiotic bacteria

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Background - The bacteria of traditional fermented foods are what created the concept of probiotics. Most western countries, however, now produce these foods by specific starter cultures not selected for health promotion, but rather for their ability to fulfill commercial production criterion. These products no longer necessarily contain beneficial bacteria. In many Asian countries the art of fermentation using indigenous bacteria is still common, and therefore it is proposed that these foods may contain novel bacteria that have probiotic potential.

Objective - This study examined naturally fermented Vietnamese foods for bacteria that survive in vitro simulated gastrointestinal conditions, the first step in identifying potential probiotic bacteria.

Design - Vietnamese fermented foods derived from 7 different produce were examined: mustard leaves, brinjals, onions, cabbages, taro stems, radish leaves and meat. For each sample, 1 g of food was resuspended in 10 mL of MRS broth, prior to consecutive exposure to acidic MRS broth (pH 2.5) and MRS broth containing 1% bile salts. After exposure, the samples were plated onto MRS agar. Isolates were tested for survival in in vitro simulated gastric juice at pH 2.0; 2.5 and 3.0, and simulated small intestinal juices with or without 0.3% bile salts at pH 8.0. Tolerant strains were observed morphologically and were identified using their carbohydrate fermentation patterns.

Outcomes - Eleven strains out of 57 isolates from Vietnamese fermented foods showed potential probiotic characteristics. Among them five strains of Lactobacillus plantarum, three of Lactobacillus fermentum, two of Lactobacillus acidophilus and one of Lactobacillus brevis were identified.

Conclusion - Naturally fermented foods may contain an abundant array of potential probiotic bacteria. Careful selection of these bacteria will provide an opportunity to develop foods that not only fulfill the commercial requirements, but also give the food functionality. This study has demonstrated that in traditional Vietnamese fermented foods, there exist bacteria that survive in vitro gastrointestinal simulated conditions, the first step in identification of novel probiotics. How these bacteria can impact clinically on the consumer needs to be further investigated.