

## Effects of Feeding *OdorLess*<sup>TM</sup> \*\* to Eliminate Dog Feces Odor

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**In the experiments, dogs ate *Odorless*<sup>TM</sup> compared to other food supplements. Those who did not eat food supplement tablets or *Odorless*<sup>TM</sup> found within one week that the amount of chemicals that cause odor, such as Protein Metabolite, Ammonia Nitrogen and Sulfide, decreased significantly ( $p < .001$ ) and had no effect in reducing Indole significantly ( $p > .05$ ). The Carbohydrate metabolite decreased due to *Odorless*<sup>TM</sup> and grain supplements ( $p < .05$ ) with no significant difference between the two groups ( $p > .15$ ).**

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Emission of odors from livestock is caused by gas generated and emitted by the animal, and the odor caused by the decomposition of waste excreted by the animals, especially that found in animal manure. The buildings housing the livestock smell badly, which is a problem for the owners, people who also live there and neighbors closeby.

In addition, these gases are pollutants, and also possibly harmful to human physical and mental health (Schiffman, 1998; Rideout et al, 2004; Swanson et al., 2002). They also have a negative effect on the digestive system and throughout the body of the animal itself. The main chemical compounds causing odors are ammonia, indoles, skatole, phenols (phenol, *p*-cresol) and volatile sulfur-containing compounds such as dimethyl disulfide, diethyl disulfide, di-*n*-propyl disulfide and di-*n*-butyl disulfide. These compounds are known to cause gastrointestinal health problems, especially the end colon (Hussein et al., 1999; Johnson, 1977; Silverman and Andrews, 1977). Ammonium compounds can also affect birth and cause tumors (Lin and Visek, 1991; Visek, 1978). Skatole and indole are associated with cancer and tumors in the gastrointestinal tract. Indole is used to measure cancer conditions (Karlin et al., 1984), and findings also indicate Indole can cause tissue damage

from the digestive oxidation process of the gastrointestinal tract with the colon (Garbe *et al.*, 1999).

A previous study using Fructo-oligosaccharide or FOS supplements in the diet showed a decrease in substances produced from the breakdown of proteins. Volatile sulfide compounds in the group also enhanced the digestive system within the gastrointestinal tract as well (Swanson et al., 2002).

*Bacillus subtilis* is a bacterium found naturally in the soil. Bacteria in the experiments were found to grow and produce spores. In experiments with chickens (Tam *et al.*, 2006) the feeding spores of *Bacillus subtilis* were also able to occupy and grow within the anaerobic conditions found in the gastrointestinal tract and within the intestines and colons of chickens, (Stephen *et al.*, 2008) indicating the possibility that *Bacillus subtilis* can work within the digestive system of dogs with lower oxygen content.

According to experiments by Yumoto et al, a reduction in the smell of manure was achieved by using *Bacillus asahii* to reduce the amount of fatty acid vapors causing the smell. (Yumoto *et al.*, 2004).

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\*\* *Odorless*<sup>TM</sup> Probiotic and Prebiotic products group of White Crane (V 88) Aqua-Tech Ltd., in experiments certifying the reduction in smells from body odor, saliva and feces produced by digestive system/ gastrointestinal function using Fructo-oligosaccharide (FOS) and *Bacillus* spp.

These trials tested the effects of animals eating *Odorless*<sup>TM</sup> (which is a mixture of *Bacillus spp*) to reduce the toxic odors in dog feces compared with eating normal food and food supplements that do not have *Bacillus spp* present.

In these experiments, *Odorless*<sup>TM</sup> effectively reduced the smell of dog feces by reducing the odor caused by toxins such as Ammonia nitrogen, Sulfide and Carbohydrate metalite but not the amount of Indole. Changes effected by the *Bacillus spp* will not necessarily reduce the amount of Indole. However, these changes are more likely to be caused by other substances used in food supplements or as a result of the FOS itself, as the trials did not detect an increase in Skatole or Indole. This may be due to the volume of Skatole present being lower after extraction than the test equipment was able to detect (at least 1 ppm), which could be a topic for further study.

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