

PRESS RELEASE

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Insect ingredients spell a breath of fresh air for dogs

New study shows a diet based on the black soldier fly improves oral health and reduces dogs' bad breath

A recent study published in the *Journal of Insects as Food and Feed* into the impact of insect ingredients in dog food has reported positive effects on dental health. Volatile sulphur compound (VSC)-producing bacteria in the dental plaque were reduced and beneficial bacteria such as *Moraxella* were increased in saliva microbiota. The study, conducted with a diet based on the black soldier fly (BSF), shows a drop in the dreaded bad breath that afflicts many of our canine companions. The results open up exciting opportunities for pet food manufacturers to develop new applications, from treats and kibble to wet food, that capitalise on the positive oral health message.

Researchers at the Federal University of Paraiba (UFBP) in Brazil reported a 7% reduction in the bacteria that cause VSC and trigger bad breath. This outcome is particularly notable since VSC-producing bacteria would generally be expected to increase with the consumption of regular food with no dental prophylaxis. In addition, based on a metagenomic analysis, the black soldier fly diet seems to modulate saliva microbiota. The abundance of *Moraxella* in saliva was increased. The *Moraxella* group of bacteria is considered a marker of oral health and beneficial for the oral microbiome.

Finally, a panel of blind subjects was asked to evaluate the breath of eight beagle dogs after a period of 50 days being fed with the black soldier fly diet or a poultry by-product diet. Based on an organoleptic intensity scale, the dogs fed the black soldier fly diet had a 'barely noticeable odour', scoring a 1 compared with a 2 'slight but noticeable odour' for the dogs fed with poultry by-product meal. This is good news for dog lovers, for whom halitosis can be extremely unpleasant. The study concludes that a diet based on the black soldier fly has the potential to increase dental and gum health and improve doggie bad breath.

Periodontal disease is the biggest and most common health problem in dogs, affecting around 80% of animals over three years of age¹, and it's often first identified through less-than-fragrant breath. Halitosis is the result of proteolytic activity in the mouth, where bacteria degrade food proteins, amino acids, mucins, oral fluids and cells, generating volatile sulphur compounds which are responsible for aggravating periodontal disease and causing a bad odour in the mouth. Not only is halitosis a marker of possible tooth and gum disease, foul-smelling breath is also a huge turn-off for even the most dedicated dog owners.

Sponsored by leading innovators in insect ingredients Protix, the study involved eight female beagle dogs in a cross-over design with half of the animals fed for 50 days either a diet of extruded dry kibble containing poultry by-product meal or a comparable kibble diet containing ProteinX[®] - a protein meal that is produced from the larvae of the black soldier fly. The dogs were subsequently fed for a further 50 days with the opposite diet. The results were then compared. The inclusion level of ProteinX in the diet was 29.4%.

The study shows that ProteinX opens up new opportunities for pet food manufacturers to expand their claims across a number of products, including dog treats and dry and wet food. Pet food products incorporating insect ingredients for oral health have already been successfully brought to the market. ProteinX combines palatability with good digestibility, is hypoallergenic and also more sustainable in terms of land and water use plus CO₂ emissions compared with common alternatives. Thanks to its attractive balance of essential amino acids, fatty acids and minerals, it is ideally suited for healthy and sustainable pet food.

Bruna Loureiro, product development manager at Protix, says: “We know that scientific facts are important to our customers and end-consumers in making decisions about their pets’ diets. We are committed to working with leading partners to establish a body of factual evidence to allow pet parents to make informed decisions.”

Download the white paper here: <https://protix.eu/white-paper/>

¹ OLSÉN, L.; BRISSMAN, A.; WIMAN, S.; ERIKSSON, F.; KAJ, C.; BRUNIUS ENLUND, K. Improved oral health and adaptation to treatment in dogs using manual or ultrasonic toothbrush or textile of nylon or microfiber for active dental home care. *Animals*, v. 11, n. 9, p. 2481, 2021

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Note to editors:

The study was co-authored by Bruna Loureiro, PhD, in her role as lead researcher at the Federal University of Paraiba. Bruna is now Product Development Manager at Protix and is available for further questions about the study: bruna.loureiro@protix.eu.

About Protix

Protix is the leading company in insect-based ingredients for healthy and sustainable pet food, animal feed and organic fertiliser. The company is on a mission to create low-footprint ingredients that solve major issues in the current food system. Protix creates a perfect circular food chain by using organic waste from the food industry as feed for the black soldier fly (BSF). In turn, the insects are processed into valuable nutrients such as proteins and lipids. Protix’s customers use these proteins and lipids as high-quality ingredients for feed and food. Moreover, residual streams from the insects are used as organic fertiliser. This way, insects close the loop and bring the food system back in balance with nature. Protix operates the first-in-the-world industrial insect facility. With breeding and processing under one roof, the company has complete control of the production chain and offers reliable, high-quality supply. As the frontrunner and industry leader, Protix has laid the basis for a broad range of applications in feed and food. The company is now expanding internationally to deliver its solutions on a much broader scale. Protix believes in the power of partnerships, and actively seeks collaboration with forward-thinking players to unleash the potential of insect ingredients for the world. Join us on our mission! www.protix.com

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