

BIOCHEM show case

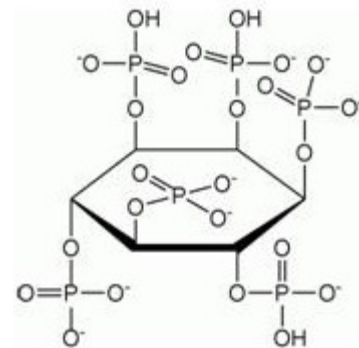
Develop a method to provide pigs with the necessary phosphorus without the environmental impact

Problem

Intensively reared pigs need additional phosphorous in their feed for healthy growth. This is usually added as inorganic phosphorous in the form of mono calcium phosphorous (MCP). Unabsorbed phosphorous passes through into the manure, and if spread onto fields as a fertilizer can lead to excess phosphorous run-off into rivers and lakes leading to eutrophication.

Technical solution

Phytic acid (inositol hexakisphosphate) is the main storage form of phosphorus in plants. The phosphorus is not bioavailable to non-ruminants as they lack the enzyme phytase that can be added to animal feed to release the phosphorus. No inorganic phosphorus needs to be added. This shift in the source of phosphorous has a large impact on the environmental footprint of pig farming.



Benefits

The annual impact of shifting all pig herds in Denmark to a phytase supplemented diet instead of MCP supplemented would be:

- Reduction in greenhouse gases by 27 kT of CO₂
- Reduction in acidification by 450 T SO₂ equivalent

- Reduction in nutrient enrichment by 1200 T phosphate equivalent
- Avoiding mining 20 kT phosphate bearing rock

Additional information

DSM

Website

http://www.dsm.com/en_US/html/dnpna/anh_swin_phytase.htm

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Website

<http://www.novozymes.com/en/sustainability/Published-LCA-studies/Documents/Environmental%20assessment%20of%20ronozymes%20phytase%20as%20an%20alternative%20to%20inorganic%20phosphate.pdf>