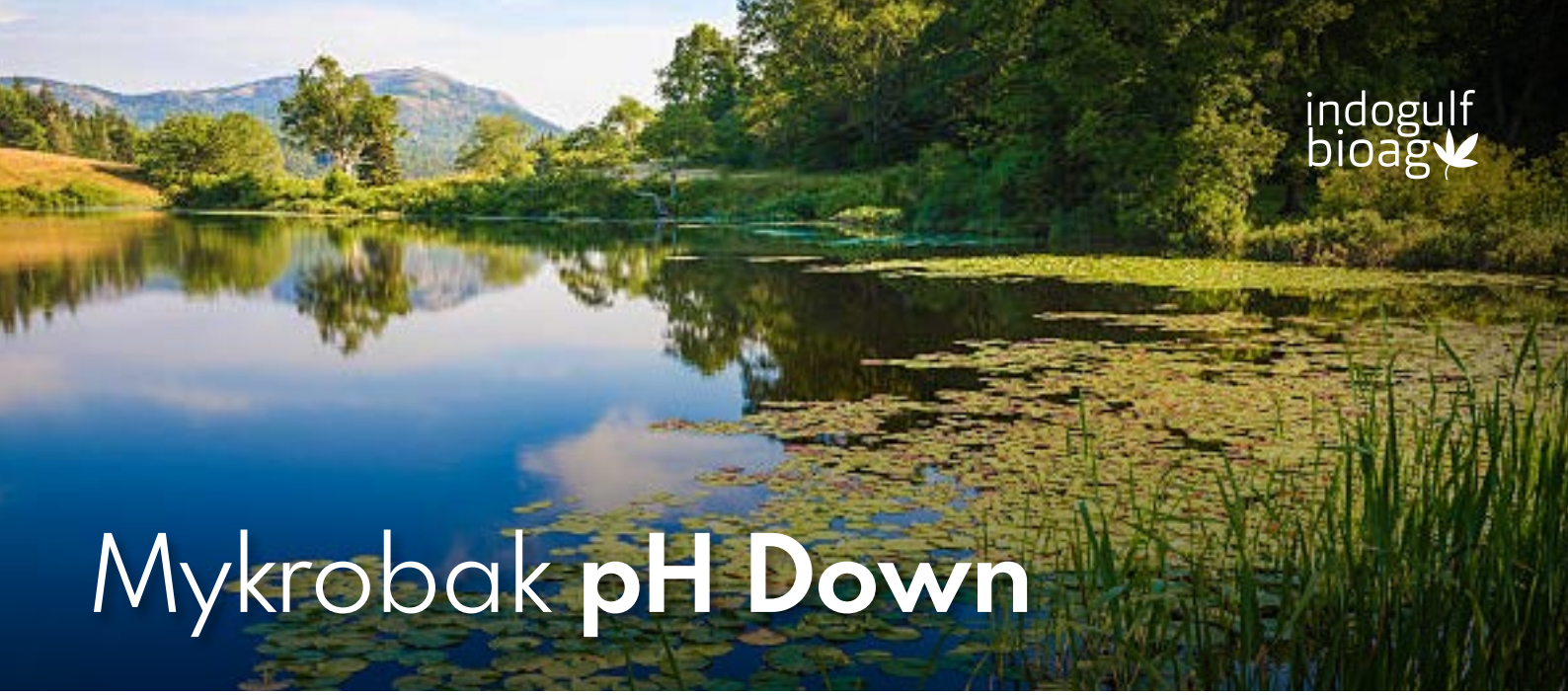


Mykrobak **pH Down**

What is Mykrobak pH Down?

MYKROBAK-Ph Down is biosafe, economical, inhabitant friendly, farmer friendly, consumer friendly, environment friendly

Variation of 'pH' from the ambient 'pH' is toxic to the inhabitant and also to beneficial bacteria, plankton, beneficial algae.

Optimum pH for bacterial growth	
Micro-organism	**Optimum pH**
Escherichia coli	6,0-8,0
Lactobacillus spp.	5,4-6,4
Most Salmonella spp.	6,8-7,2
Campylobacter jejuni	6,8-7,2
Shelf Life	2 years

Ambient 'pH' will ensure friendly environment to ensure good growth rates, regular moulting, survival rate, proper feed intake, and needy metabolic activity.

Sudden change in pH leads to Stress

Contains

- Acetic Acid Producing Microbes,
- Lactic Acid Producing Microbes,
- Phosphorous Solubilising Microbes,
- 2-Hydroxy -1,2,3-propanetricarboxylic Acid $C_6H_8O_7$
- Benzoic Acid, $C_7H_6O_2$
- Citric Acid Producing Microbes
- DL-Lactic Acid $C_3H_6O_3$
- L- 2,3 Dihydroxy butanedioic acid $C_4H_6O_6$
- pH Buffers
- Propionic Acid, $C_3H_6O_2$

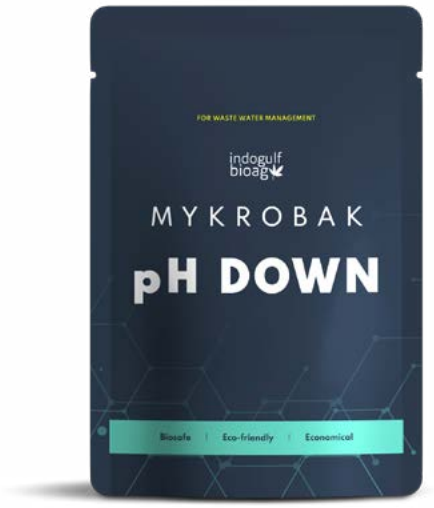
Mode of Action

Organic Acids present will see that the Product works slowly and steadily day and night at all parameters of the water medium to reduce the alkalinity and to make the water medium slightly acidic without affecting the ambience of the inhabitants.

The antibacterial action of organic acids depends on whether the bacteria are pH-sensitive or not. Certain bacteria are sensitive to pH, e.g. E. coli, Salmonella spp., Listeria monocytogenes,vClostridium perfringens, while others are not, e.g. Bifidobacteria, Lactobacillus spp. pH-sensitive bacteria. Organic acids in undissociated state, i.e. non-ionised, more lipophilic, penetrate the semi-permeable membrane of the bacterial cell wall and enter the cytoplasm. At the internal pH of bacteria (around pH 7,0), the organic acids dissociate, releasing hydrogen ions (H^+) and anions (A^-). The internal pH of the microbe decreases, which the bacteria are unable to tolerate. A specific H^+-ATPase pump acts to bring the pH inside the bacteria level. This phenomenon consumes energy and eventually stops the growth of the bacteria or even kills them. The lowering of pH also suppresses the enzymes, e.g. decarboxylases and catalyses, inhibits glycolysis, prevents active transport and interferes with signal transduction. The anionic (A^-) part of the acid is trapped inside the bacteria and becomes toxic by creating anionic osmotic problems for the bacteria. Thus, the antibacterial effects of organic acids work though:

1. Accumulation of toxic anions;
2. Disruption of the cellular membrane.
3. Inhibition of fundamental metabolic functions
4. Modification of internal pH

Anti-bacterial spectrum of organic acids			
Acid	**Effective against**	**Less effective against**	**Ineffective against**
Formic acid	Yeasts & bacteria (E. coli, Salmonella)	Lactic acid bacteria & moulds	
Acetic acid	Many bacteria spp.	Yeasts & moulds	
Propionic acid	Moulds	Bacteria	Yeasts
Butyric acid	Bacteria (E.coli & Salmonella)		
Lactic acid	Bacteria		Yeasts & moulds
Citric acid	-	Bacteria	
Malic acid	Some bacteria & yeasts		
Sorbic acid	Yeasts, moulds & some bacteria		



Benefits of Mykrobak pH Down

- Tolerant to fluctuations in Salinity, Light intensity, hardness, turbidity, presence of obnoxious gases
- Works in both saline and fresh waters

Functions of organic acids

- Favour mineral absorption by creating an ideal ph in the intestine
- Improve protein and energy digestibilities by reducing microbial competition with the host for nutrients, as well as endogenous nitrogen losses
- Increase pancreatic secretion and tropic effects on gastrointestinal mucosa
- Inhibit the growth of pathogenic bacteria, yeasts and moulds
- Lower the incidence of sub clinical infections
- Maintain an optimum ph in the stomach, allowing correct activation and function of proteolytic enzymes
- Optimise protein digestion in stomach
- Reduce the production of ammonia and other growth-depressing microbial metabolites
- Stimulate feed consumption by improving palatability of feed

Non-pH-sensitive bacteria

The non-pH-sensitive bacteria are able to tolerate a large differential between internal and external pH. At a low internal pH, organic acids re-appear in a non-dissociated form and exit the bacteria. Equilibrium is created and the bacteria do not suffer.

Acetobacter Xylinum Produces Acetic Acid and Nucleotides

Lactic Acid Bacillus (Formerly known as Lacto Bacillus Sporogenes) proved effective in lowering LDL Cholesterol; Provides an excellent preventative effect against various diseases of the intestine; Increases production of Rotefiers; Limits the proliferation of pathogens in rotifiers; Provides a source of immuno stimulant; Useful in the cases of non specific vaginitis

L acidophilus produces extremely effective natural antibiotic substances that can inhibit 11 known disease causing bacteria; inhibit yeast infections; Helps in cases of chronic constipation and diarrhea by replacing undesirable intestinal organisms; Helps in the cases of food poisoning; Lowers levels of LDL Cholesterol; Found to alleviate intestinal disorders, principle being that the ingestion of large numbers of the lactobacilli may result in replacement of undesirable intestinal organisms by harmless and beneficial organisms, Aids in nutrient uptake; Fights Candida overgrowth; Controls effectively E Coli and Staphylococcus aureus. Citrobacter produces citric Acid

Phosphorous solubilising microbes like Pseudomonas striata, Aspergillus awamori, B. megaterium; solubilise the Phosphorous available in the soil and water.

Dosage

500g/ Acre once in 15 days.

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