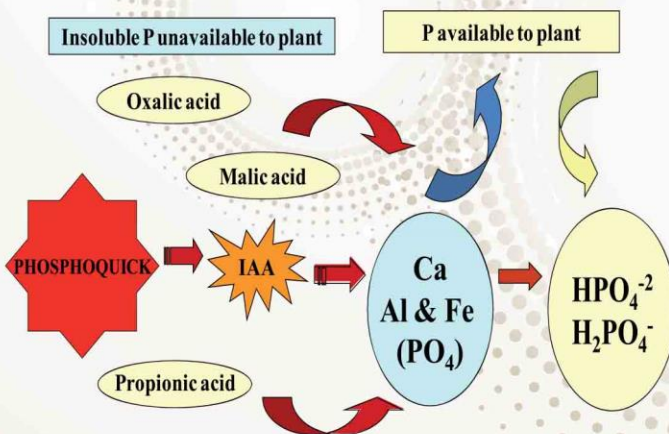


# Phosphate-Solubilizing Bacteria for Enhanced Growth of Aerobic Rice



Phosphorus is one of the major elements which is important for plant growth. Most tropical soils are acidic and under this condition most of the P is fixed and not available for plant uptake. This leads to increase in production cost. The benefits of this product include;

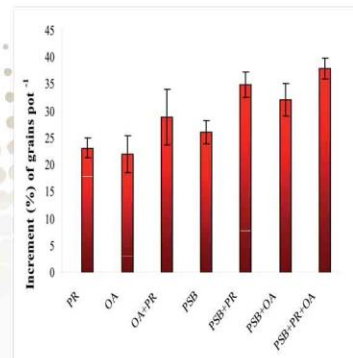
- Improves root and shoot growth
- Enhances P solubilization from phosphate rock and other insoluble P sources through production of organic acids (oxalic, malic, succinic and propionic acids)
- Enhances plant P acquisition for improved growth at reduced P fertilizer
- Produces plant hormones (indole acetic acid) and enzymes
- Stimulates soil micro flora
- Environment friendly and suitable for sustainable crop production



Phosphate-solubilizing bacteria (PSB) are frequently used in agriculture as plant growth promoters as they are able to solubilize different forms of inorganic phosphates. Several strains of PSB have been isolated from aerobic rice grown under local condition. These bacteria of *Bacillus* spp. are able to solubilize P from insoluble phosphate making P more available for growth of aerobic rice and other crops.



Aerobic rice is being tested in Malaysian paddy soil with low water usage



Effect of PSB on a) grain yield, b) shoot and root growth of aerobic rice. Rock phosphate (PR); organic acid (OA); phosphate solubilizing bacteria (PSB)

## Potential Consumers

- Organic fertilizer and biofertilizer producers
- Aerobic rice and other crops

## Cost

Application of the product releases 82% of P from the insoluble P from rock phosphate (CIPR) and indigenous P in soil resulting in higher plant P uptake and higher grain yield (37.87% over non-inoculated control). This reduces the application of phosphorus fertilizer, thus reducing the production cost and the environmental pollution due to leaching of the phosphate ions.



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