

# KGS-2:

## Plant Growth Promoter

KGS-2 is a novel natural plant growth promoting and phosphate solubilizing bacteria, *Pseudomonas* sp., genetically distinct from others that have been described in literature and commercially available.

<b>PURPOSE</b>	<ul style="list-style-type: none"><li>• Increases yield, biomass, protein</li><li>• More robust plants</li></ul>
<b>SCALE UP PRODUCTION</b>	<ul style="list-style-type: none"><li>• Demonstrated scale up production for commercial and research farms application</li><li>• Capacity to scale up for commercial production.</li></ul>
<b>APPLICATION</b>	<ul style="list-style-type: none"><li>• Foliar and seed coating treatment demonstrated under field conditions</li><li>• Compatible with KGS-3 application (antifungal).</li></ul>
<b>SEEDLING VIGOUR EFFECTS</b>	<ul style="list-style-type: none"><li>• Increased seedling vigour at ambient and cooler temperatures</li><li>• More rapid plant growth</li></ul>
<b>ASSISTS WITH INSOLUBLE P UPTAKE</b>	<ul style="list-style-type: none"><li>• Reduce phosphorus input</li><li>• Reduced fertilizer requirements</li><li>• Reduced P losses from fields</li><li>• Improved wastewater quality, reducing treatment costs for indoor agriculture</li><li>• Reduced impacts on downstream waterways and algae growth</li></ul>
<b>WIDE RANGE OF CROPS AND VEGETABLES</b>	<ul style="list-style-type: none"><li>• Field crops (wheat, canola, potatoes, corn, and others)</li><li>• Various vegetables (tomatoes, spinach and others)</li><li>• Cut flowers and others</li></ul>
<b>NON-GMO ORGANIC COMPATIBLE</b>	<ul style="list-style-type: none"><li>• Wide use patterns</li><li>• Broad public acceptance</li></ul>
<b>PATENTS</b>	<ul style="list-style-type: none"><li>• Canadian Patent 3,008,344, approved on August 17, 2020</li><li>• USA Patent 16/008,404, approved on July 7, 2020</li></ul>
<b>LICENSING</b>	<ul style="list-style-type: none"><li>• Canadian Food Innovation Agency (CFIA) submitted on October 2021</li></ul>

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# KGS-3:

## Broad Spectrum Antifungal

KGS-3 is a novel natural antifungal, plant growth promoting and phosphate solubilizing bacteria, *Paenibacillus* sp., that has shown powerful bio-control properties, in addition to PGP characteristics.

<b>PURPOSE</b>	<ul style="list-style-type: none"><li>• Prevents yield loss</li><li>• Improved plant health</li></ul>
<b>SCALE UP PRODUCTION</b>	<ul style="list-style-type: none"><li>• Demonstrated scale up production for commercial and research farms application</li><li>• Capacity to scale up for commercial production</li></ul>
<b>APPLICATION</b>	<ul style="list-style-type: none"><li>• Foliar, in-furrow and seed coating treatment demonstrated under field conditions</li><li>• Compatible with KGS-2 application (PGPR)</li></ul>
<b>ASSISTS WITH INSOLUBLE P UPTAKE</b>	<ul style="list-style-type: none"><li>• Reduce phosphorus input</li><li>• Reduced fertilizer requirements</li><li>• Reduced P losses from fields</li><li>• Improved wastewater quality, reducing treatment costs for indoor agriculture</li><li>• Reduced impacts on downstream waterways and algae growth</li></ul>
<b>BROAD SPECTRUM ANTIFUNGAL</b>	<ul style="list-style-type: none"><li>• Activity against head blight (<i>Fusarium graminearum</i>), blackleg (<i>Leptosphaeria maculans</i>), brown rot (<i>Rhizoctonia solani</i>), early blight (<i>Alternaria solani</i>), verticillium wilt (<i>Verticillium spp.</i>), white mold (<i>Sclerotinia sclerotiorum</i>), damping off (<i>Pythium ultimum</i>), neck rot (<i>Botrytis allii</i>), and other diseases</li></ul>
<b>NON-GMO ORGANIC COMPATIBLE</b>	<ul style="list-style-type: none"><li>• Wide use patterns</li><li>• Broad public acceptance</li></ul>
<b>PATENTS</b>	<ul style="list-style-type: none"><li>• Canadian Patent 3,114,256, approved on August 5, 2021</li><li>• USA Provisional Patent Application 62/799,838, filed Feb 1, 2019</li></ul>
<b>LICENSING</b>	<ul style="list-style-type: none"><li>• Canadian Food Innovation Agency (CFIA) submitted on April 2021</li><li>• Pest Management Regulatory Agency - Pre-submission consult document for biofungicide KGS-3 submitted on December, 2021</li></ul>

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