CLAIMS

1. An isolated microbial consortium for promoting plant growth, comprising:

a plurality of microbial strains, wherein one of the plurality of microbial strains contained in the isolated microbial consortium forms a syntrophic relationship with the remaining microbial strains contained in the isolated microbial consortium, and

wherein the isolated microbial consortium exhibits a plant-growth promoting effect and is selected from the group consisting of a microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-5 and a microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-6,

wherein the microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-5 comprises *Streptomyces sp., Agromyces sp.,* and *Bacillus subtilis;* and

the microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-6 comprises *Priestia aryabhattai*, *Pseudomonas sp.,* and *Atlantibacter sp*.

2. A method for preparing an isolated microbial consortium for a target plant, comprising:

collecting a sample from rhizosphere communities of the target plant;

identifying microbial strains in the sample;

selecting microbial strains identified in the sample;

isolating the microbial strains from the sample;

predicting plant growth-promoting potential of each of the isolated microbial strains; and

validating the predicted plant growth-promoting potential with the target plant,

wherein the step of selecting the microbial strains comprises selecting microbial strains with each having at least a plant growth-promoting genetic element; and selecting at least one

microbial strain capable of forming a syntrophic relationship with the remaining microbial strains; and

wherein the selected microbial strains form an isolated microbial consortium exhibiting a plant growth-promoting effect, the isolated microbial consortium being selected from the group consisting of a microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-5 and a microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-6,

wherein the microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-5 comprises *Streptomyces sp., Agromyces sp.,* and *Bacillus subtilis;* and

the microbial consortium deposited with NAIMCC under Accession No. NAIMCC-IDA-6 comprises *Priestia aryabhattai*, *Pseudomonas sp.,* and *Atlantibacter sp.*

3. The method of claim 2, wherein the step of predicting includes applying *in-silico* genomic and metabolic characterization and conducting a chemical assay on each of the isolated microbial strains.

4. A method of promoting growth of a target plant using the isolated microbial consortium according to claim 1, comprising:

contacting seeds of the target plant with an effective amount of the isolated microbial consortium to treat the seeds prior to sowing the seeds in soil.

5. Use of the isolated microbial consortium of claim 1 for treating a target plant to promote plant growth, comprising contacting seeds of the target plant with the isolated microbial consortium.

6. Use according to claim 5, wherein the target plant is a member of the *Brassicaceae* family.