sterility is required for inoculating each culture vessel, including the main production fermenter.

The present invention avoids the need for seed lines at the production site and provides simple means for sterile inoculation, thus saving both capital expenditure (CAPEX) and operational expenditure (OPEX). Compositions of dried or partially-dried spores as disclosed herein can be easily transported to organic waste management sites, stored and removed from storage upon need. It was surprisingly found that the spores in the dried or partially-dried compositions can successfully recover from storage, germinate and ferment organic waste to lactic acid at high yields. Advantageously, the dried or partially-dried compositions of spores do not require cooling and sustain various storage conditions for prolonged periods of time. As exemplified hereinbelow, viability of the spores is maintained throughout storage, and cell loss following drying and storage is minimal.

The utilization of organic waste as a substrate for fermentation as described herein is highly advantageous compared to previously described lactic acid production processes which utilize source materials that are of high value as human food.

As further disclosed herein, the dried or semi-dried compositions of spores can be inoculated into the fermenter together with a saccharide-degrading enzyme to obtain simultaneous saccharification and fermentation. Remarkably, no or minimal lag time is observed until lactic acid is produced.

In one aspect, the present disclosure refers to a method for recycling organic waste to produce lactic acid or a salt thereof, the method comprising:

(i) providing a pretreated organic waste that was subjected to pretreatment comprising reduction of particle size and optionally sterilization;

(ii) providing a dried or partially-dried composition of *Bacillus coagulans* spores;

(iii) mixing the pretreated organic waste in a fermentation reactor with one or more saccharide-degrading enzyme and the dried composition of *B. coagulans* spores, and incubating the mixture in the fermentation reactor to saccharify the organic waste and induce germination of the spores and subsequently lactic acid production by vegetative *B. coagulans* cells that germinate from the spores; and

(iv) recovering lactic acid or a salt thereof from the fermentation broth.

According to one example, the present invention provides a method for

recycling organic waste to produce lactic acid or a salt thereof, the method comprising:

(i) providing a pretreated organic waste that was subjected to pretreatment comprising reduction of particle size and optionally sterilization;

(ii) providing a dried composition of *Bacillus coagulans* spores;

(iii) mixing the pretreated organic waste in a fermentation reactor with one or more saccharide-degrading enzyme and the dried composition of *B. coagulans* spores, and incubating the mixture in the fermentation reactor to saccharify the organic waste and induce germination of the spores and subsequently lactic acid production by vegetative *B. coagulans* cells that germinate from the spores; and

(iv) recovering lactic acid or a salt thereof from the fermentation broth.

In some embodiments, the method further comprises suspending the dried