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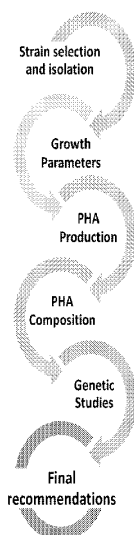
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(54) Title: POLYHYDROXYALKANOATE-PRODUCING BACTERIA AND METHODS FOR MAKING AND USING THEM

FIG. 1



(57) Abstract: In alternative embodiments, provided are methods for selecting, isolating and recombinantly engineering methane- and hydrogen-oxidizing autotrophs, including methanotrophic bacteria, for the production of biopolymer, renewable polymer or biodegradable polymer such as polyhydroxyalkanoate (PHA) such as polyhydroxybutyrate (PHB) and co-polymers, and products of manufacture and kits, and methods for using them to produce biopolymer, renewable polymer or biodegradable polymer. Provided are efficient methane-consuming methane- and hydrogen-oxidizing autotrophic microbes for PHA (for example, PHB and co-polymers) production and methods for using them, which in alternative embodiments the methanotrophs are genetically modified to improve C1 (methane or methanol)-to PHA conversion parameters.

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