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(54) **PRODUCTION AND SECRETION OF GLUCOSE IN PHOTOSYNTHETIC PROKARYOTES (CYANOBACTERIA)**

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(57) **ABSTRACT**

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The present invention includes compositions and methods for making and using an isolated cyanobacterium that includes a portion of an exogenous bacterial cellulose operon sufficient to express bacterial cellulose, whereby the cyanobacterium produces extracellular glucose. The compositions and methods of the present invention may be used as a new global crop for the manufacture of cellulose, CO₂ fixation, for the production of alternative sources of conventional cellulose as well as a biofuel and precursors thereof.

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