GM plants can bring drug ‘biofactories’ to world’s poor

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The day could soon come when patients could be taking their heart medication as a sprinkling of seeds on cereal or treating cancer with a daily cup of herbal tea. This is not woo being peddled by an alternative medicine salesman—it is the aim of a pair of biochemists who want to provide the next generation of drugs, for everything from HIV to chronic pain, to the world’s poor by producing them in fields using genetically modified (GM) plants instead of in factories.

Biochemists David Craik at The University of Queensland and Marilyn Anderson at La Trobe University have received Australia’s Ramaciotti Biomedical Research Award worth some $700,000 to develop the technology to turn plants into cheap biofactories for drugs made of mini proteins called cyclotides.

Because of their complexity peptide drugs are more precisely targeted and cause fewer side effects than small-molecule drugs, but the same complexity makes them more difficult to store and administer. Unlike small-molecule drugs peptide compounds normally have to be injected, because if swallowed, they are broken down into amino acids just like any other ingested protein, long before they can be absorbed and transported to their target. Without the weak point of loose ends cyclotides can resist degradation by our digestive enzymes, allowing them to reach their targets intact.

Read full, original post: Turning Plants into Drug Factories