

International Conference on

APPLIED MICROBIOLOGY AND MICROBIAL BIOTECHNOLOGY &

International Conference on

MICROBIOME R&D AND BIOSTIMULANTS &

3rd International Conference on

INTERNAL MEDICINE & HOSPITAL MEDICINE

October 15-16, 2018 Ottawa, Canada

Lactic acid production from bacterial fermentation of an agroindustrial cellulosic waste

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Lactic acid (LA) is an organic acid used in pharmaceutical, chemical, cosmetic and food products. Its production could be by chemical synthesis or fermentative routes, nevertheless chemical production generate a racemic mixture of DL-lactic acid, while fermentative process produces an optically pure L (+)- or D (-)-lactic acid being able to use renewable sources as substrates (4) . Most of the world's commercial lactic acid is produced by fermentation of glucose, sucrose, lactose and starch/maltose by homolactic bacteria (2) . Several studies have focused on reducing the cost of producing this input through the use of lignocellulosic and agroindustrial waste. In Mexico 382 thousand tons per year of leaf of *Agave tequilana* Weber var. *Azul* (*A.tequilana*) of manufacturing process of tequila are generated, which represents an opportunity to use it resource in fermentation processes (1,3). We used leaf juice of *A. tequilana* in fermentation process to produce L (+) lactic acid with *Enterococcus hirae*, isolated from the tomato surface (*Solanum lycopersicum*) by defined and controlled operational parameters such pH, agitation an temperature. Eleven sampling times were established for the characterization of the behavior of the microorganism in MRS broth and in the substrate to be evaluated (leaf juice of *A. tequilana*). MRS broth was prepared in five different dextrose concentrations to evaluate any inhibitory effect by the substrate concentration. We showed the viability of the leaf juice of *A. tequilana* to be used as a substrate in the generation of biomass and lactic acid, comparing the data with those obtained in MRS broth.

Biography

Maria Guadalupe Valeriano Martinez is graduated from the Master of Science in Biotechnological Processes at the Universidad de Guadalajara (Jalisco, Mexico). With specialization in the biotechnological production of metabolites of industrial interest, biofuels (methane and hydrogen) and the biological-molecular characterization of microbial communities present and active in anaerobic bioreactors. With more than 10 years of experience in the national pharmaceutical industry in the fields of risk management, quality by design, project management, development and validation of analytical methods and regulatory management of new projects.

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