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Editorial

Industrial applications of bacteria

Salem Djebala

Department of Ruminants, University of Liège, Liège, Belgium, Belgium.

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EDITORIAL

Unlike in multicellular organisms, increases in cell size and reproduction by cell division are firmly connected in unicellular organisms. Bacteria develop to a fixed size and afterward replicate through binary fission, a type of asexual reproduction. Under ideal conditions, bacteria can develop and isolate amazingly quickly, and bacterial populations can double as fast as each 9.8 minutes. During cell division, two identical clone daughter cells are produced. A few bacteria, while as yet reproducing asexually, structure more intricate reproductive structures that assist with disperse the newly formed daughter cells [1]. Models incorporate fruiting body development by Myxobacteria and aerial hyphae formation by Streptomyces, or budding. Budding includes a cell forming a projection that splits away and produces a daughter cell.

Bacteria, regularly lactic acid bacteria, like Lactobacillus and Lactococcus, in combination with yeasts and molds, have been utilized for thousands of years in the preparation of fermented foods, like cheddar, pickles, soy sauce, sauerkraut, vinegar, wine and yogurt [2]. The capacity of bacteria to degrade variety of organic compounds is exceptional and has been utilized in waste processing and bioremediation. Microbes fit for processing the hydrocarbons in petrol are regularly used to clean up oil spills. Fertilizer was added to a portion of the sea shores in Prince William Sound trying to advance the development of these naturally occurring bacteria after the 1989 Exxon Valdez oil slick [3]. These efforts were successful on sea shores that were not very thickly covered in oil. Bacteria are likewise utilized for the bioremediation of industrial toxic wastes. In chemical industry, bacteria are generally significant in the creation of enantiomerically pure chemicals for use as pharmaceuticals or agrichemical [4]. Bacteria can likewise be utilized in the spot of pesticides in the biological pest control. This regularly includes Bacillus thuringiensis (additionally called BT), a Gram-positive, soil staying bacterium. Subspecies of this bacteria are utilized as a Lepidopteran-explicit insecticide under trademarks like Dipel and Thuricide. On account of their explicitness, these pesticides are viewed as environmentally friendly, with practically no impact on people, wildlife, pollinators and most other beneficial insects.

In view of their capacity to rapidly develop and the overall simplicity with which they can be controlled, microorganisms are the workhorses for the fields of molecular biology, genetics and biochemistry. By making transformations in bacterial DNA and inspecting the subsequent aggregates, researchers can decide the function of genes, enzymes and metabolic pathways in bacteria, then, at that point apply this information to more complex organisms [5]. This point of understanding the biochemistry of a cell arrives at its most complex expression synthesis of huge amounts of enzyme kinetic and gene expression data into mathematical models of entire organisms. This is feasible in some all-around examined bacteria, with models of Escherichia coli digestion currently being produced and tested. This comprehension of bacterial metabolism and genetics allows permits the utilization of biotechnology to bioengineer bacteria for the creation of therapeutic proteins, such as insulin, growth factors, or antibodies.

*Corresponding author. Salem Djebala, E-mail: sdjebala@uliege.be.