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**Encapsulation and Probiotic  
Applications in Broiler Chicken  
Production**

**Dr Manel Sebouai**



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# **1 General Overview of Probiotics and Lactic Acid Bacteria**

## **1.1 Introduction to Probiotics**

### **1.1.1 Historical Background of Probiotics**

The idea that microorganisms may contribute positively to health developed gradually from empirical observations of fermented foods to a formal scientific concept. Long before bacteria were recognized as biological agents, fermented milk, kefir, yogurt, sourdough, pickled vegetables, and other fermented products were consumed because of their extended shelf life, improved digestibility, and perceived health-promoting value. The scientific foundation of this idea was strengthened at the beginning of the twentieth century by Élie Metchnikoff, who proposed that lactic acid bacteria present in fermented milk could suppress intestinal putrefactive microorganisms and contribute to host well-being. This hypothesis was important because it challenged the dominant view of microorganisms as only agents of disease and introduced the concept that selected microbes could support intestinal balance.

The term “probiotic” was later used to express the idea of microbial or biological factors that favor life. Markowiak and Śliżewska (2017) describe the historical development of the term from Vergin’s 1954 contrast between antibiotics and “probiotika,” through Lilly and Stillwell’s 1965 description of probiotics as microbial growth-promoting factors, to Fuller’s 1989 definition emphasizing viable microorganisms that benefit the host. This evolution shows that probiotics were not originally defined in the highly specific way used today. Early definitions focused broadly on beneficial microbial