

BACILLUS SPECIES BACTERIA PLASMIDS DIVERSITY

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Plasmid profiles are quality characteristic represented by a specific set of plasmids and can be used to characterize individual strains. Plasmid profiles can be a valuable tool for the characterization of any bacteria, including many bacteria of *Bacillus* species. *Bacillus* plasmids may be present in an amount of 1 to 17 per cell, have size 3 to 120 kb and carry the genes responsible for resistance to antibiotics, the synthesis of entomopathogenic toxins and others.

The aim of our study was to identify, analyze and compare *Bacillus* species bacteria strains plasmid profiles.

Strains of *B. thuringiensis* ONU 392, ONU 513, ONU 514, ONU 515, ONU 516, ONU 517, ONU 518 (isolated from dead insects), *B. subtilis* ONU 410, ONU 519 (isolated from the plant rhizosphere) and *B. subtilis* ONU 481, ONU 484, *B. sphaericus* ONU 498, *B. megaterium* ONU 500, *B. smithii* ONU 503 (isolated from herbal products; country of origin Vietnam) from Collection of the Department of Microbiology, Virology and Biotechnology of the Odesa Mechnikov National University were used in the research. Isolation of plasmid DNA was performed by Jensen method.

Study of the plasmid composition of *Bacillus* strains using the Jensen method adapted for plasmid isolation from bacilli cells, showed that almost all strains carried extrachromosomal genetic elements of different sizes. Identified plasmids could be divided into two groups: small plasmid of approximately 3 to 10 kb and megaplasmids ranged from 100 to 200 kb. It was found that *B. thuringiensis* strains carried five (ONU 513, ONU 515, ONU 516, ONU 517) to seven (ONU 392) extrachromosomal genetic elements, including megaplasmids. Study of *B. subtilis*, *B. sphaericus*, *B. megaterium* and *B. smithii* strains plasmid composition showed that these strains of Vietnamese origin carried two (ONU 481, ONU 484, ONU 500, ONU 503) or three (ONU 498) extrachromosomal genetic elements of different sizes, mostly small ones.

Different sized plasmids multiple maintenance presence was shown for *Bacillus* species bacteria strains of different origin. It was found that 90% of strains carried two to seven extrachromosomal elements of different sizes. Plasmid DNAs of studied bacilli strains conventionally were divided into two groups: 3 to 10 kb small plasmids and 100 to 200 kb megaplasmids.