Differences in physiology between r and K-bacterial strategists.

The definition of bacterial r/K-strategists is currently based on the time interval they need to form a colony on agar plate. Also, their growth rate which is often used to identify r/K-position within a pair of bacterial strains. To date it was evidenced that also other physiological characteristics relate to bacterial r/K-status, for example their different ability to 1) adapt for changing conditions 2) utilize complex or very diluted substrates, 3) use secondary metabolites to cope with other strains and possibly also others. The intersection of macro- and microbiological r/K-conceptions lies in time distribution of r/K-strategists during succession. The aim of this study was to verify the basic r/K-characteristics on nine chosen strains and to correlate them with their physiological differences that are implicitly regarded as characteristic for r/K-groups. The study deals with growth rates measurements on both liquid and solid media, identification of fatty acid composition and membrane fluidity of strains cultivated at near-optimum and cold temperature in order to track the differences in cold adaptation. The study also deals with the description of possible new K-strategist characteristic: the lack of correlation between the colony growth rate and the presence of neighbouring colonies of the same strain. The classical microbiological methods were used for the growth rate measurements together with FAME analysis for fatty acids identifications, fluorescence spectroscopy for membrane fluidity measurements and automated image analysis.