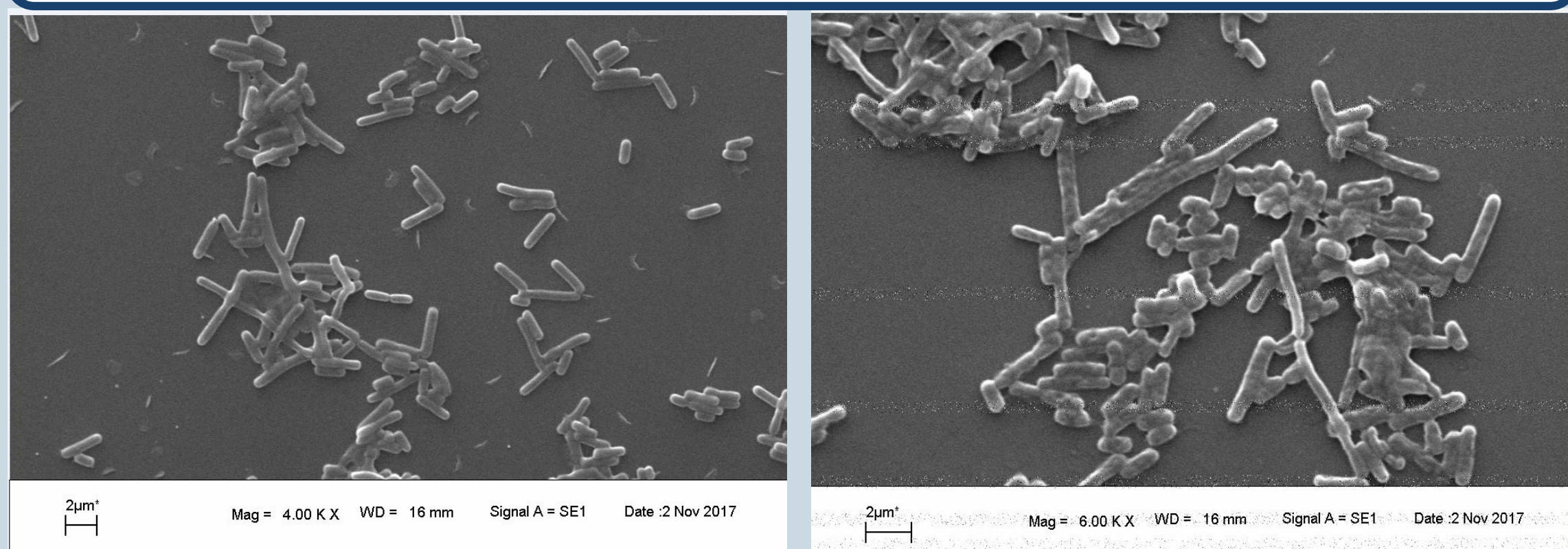


High pressure induced changes in microorganisms

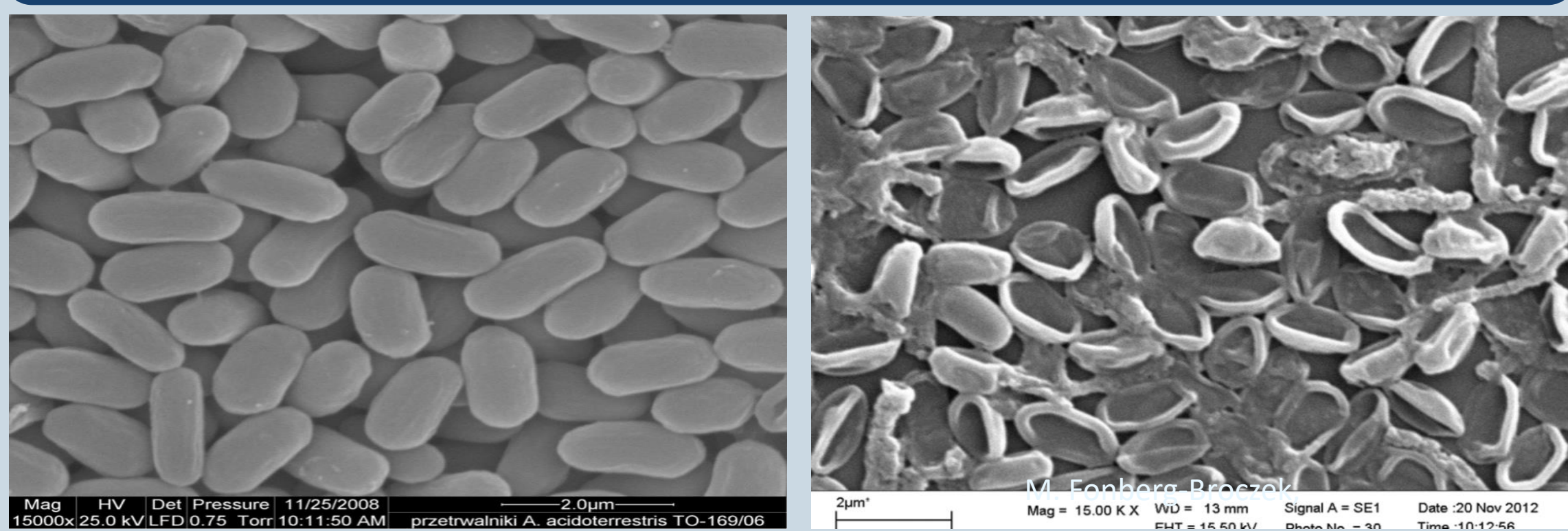
B. Sokołowska, J. Nasiłowska, I. Porębska, M. Fonberg-Broczek

Institute of High Pressure Physics carried out research on the field of use high pressure for food preservation for many years. The research was focused on the effect of high pressure on vegetative gram-positive and gram-negative bacteria, sporulating bacteria, yeasts, and molds. The transmission electron microscope (TEM), scanning electron microscope (SEM), and epifluorescent microscopy (EFM) were used in the study of morphological cell changes.

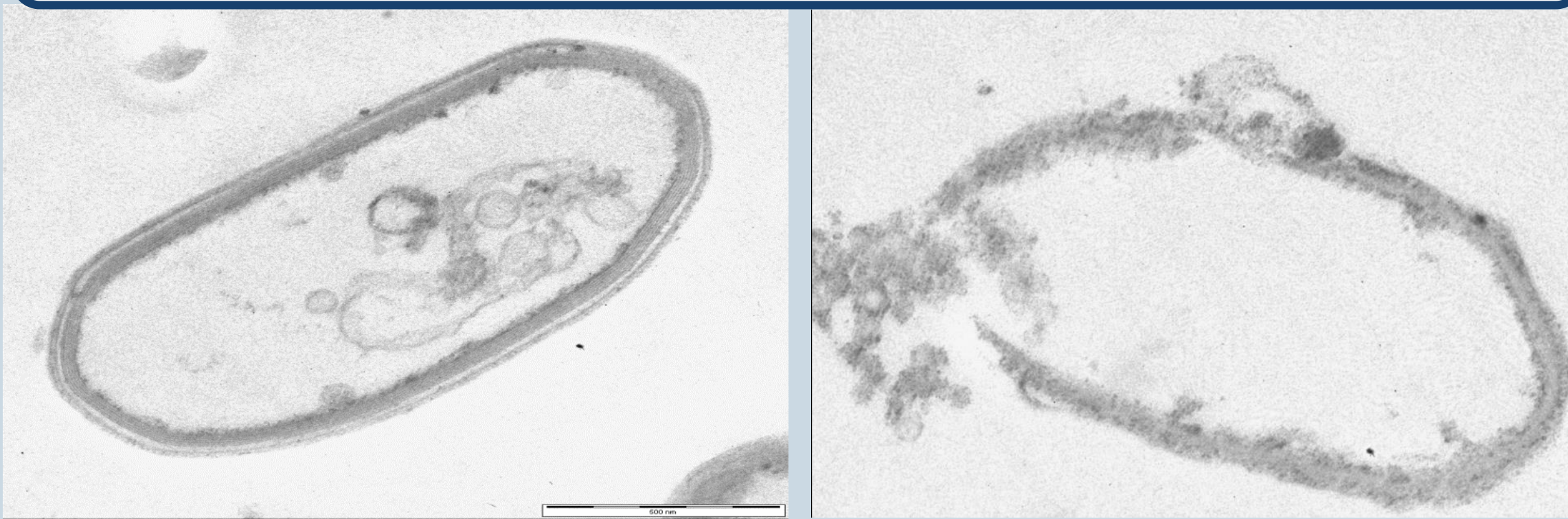
Lactobacillus brevis 3/16/1 before (on the left) and after (on the right) pressurization process visualized by SEM.



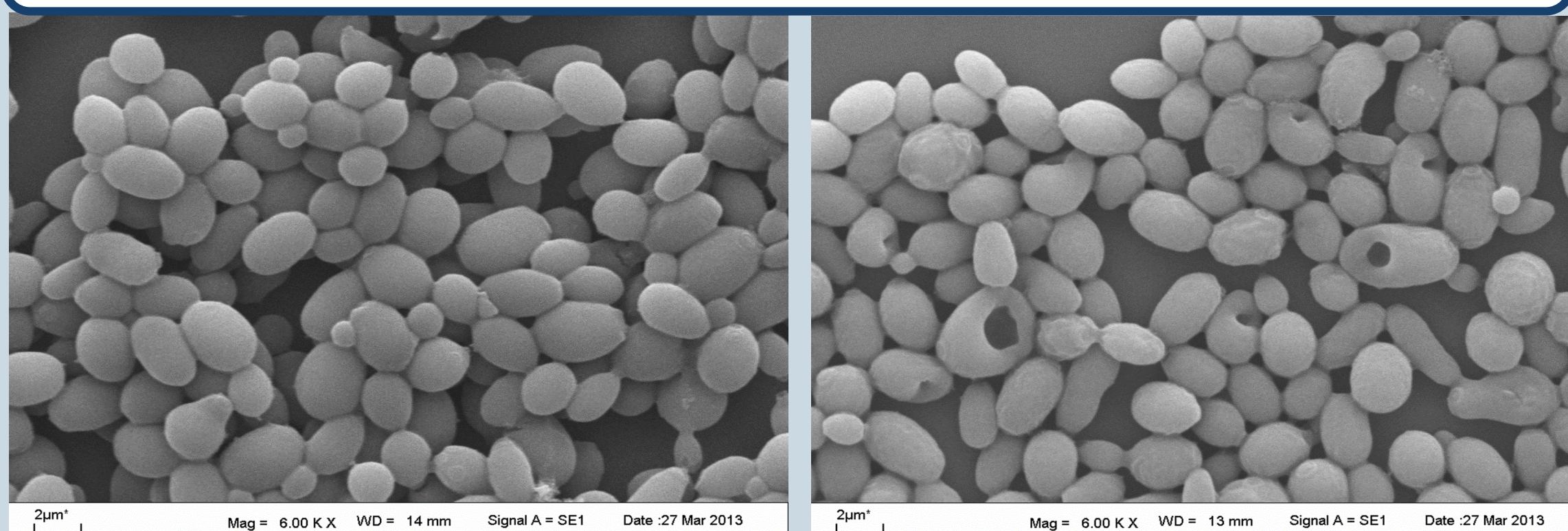
Alicyclobacillus acidoterrestris spores before (on the left) and after (on the right) pressurization process visualized by SEM.



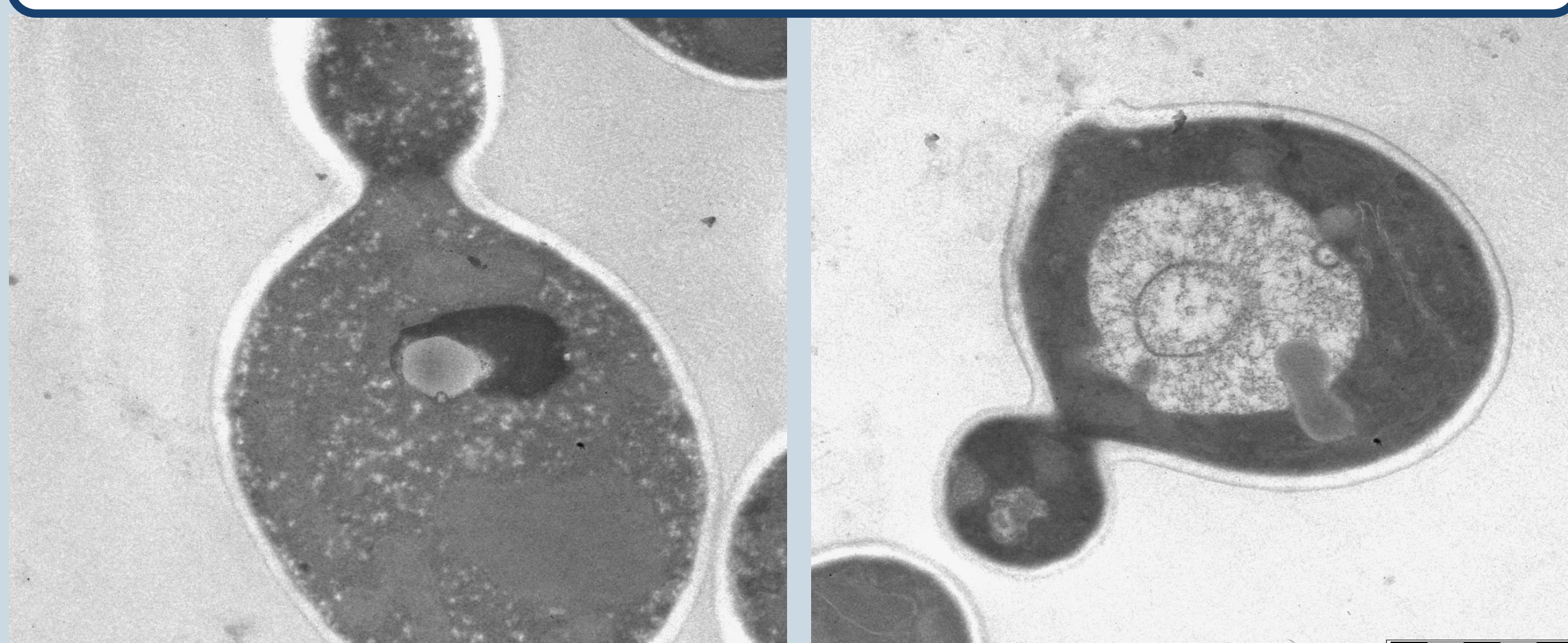
Alicyclobacillus acidoterrestris spores before (on the left) and after (on the right) pressurization process visualized by TEM.



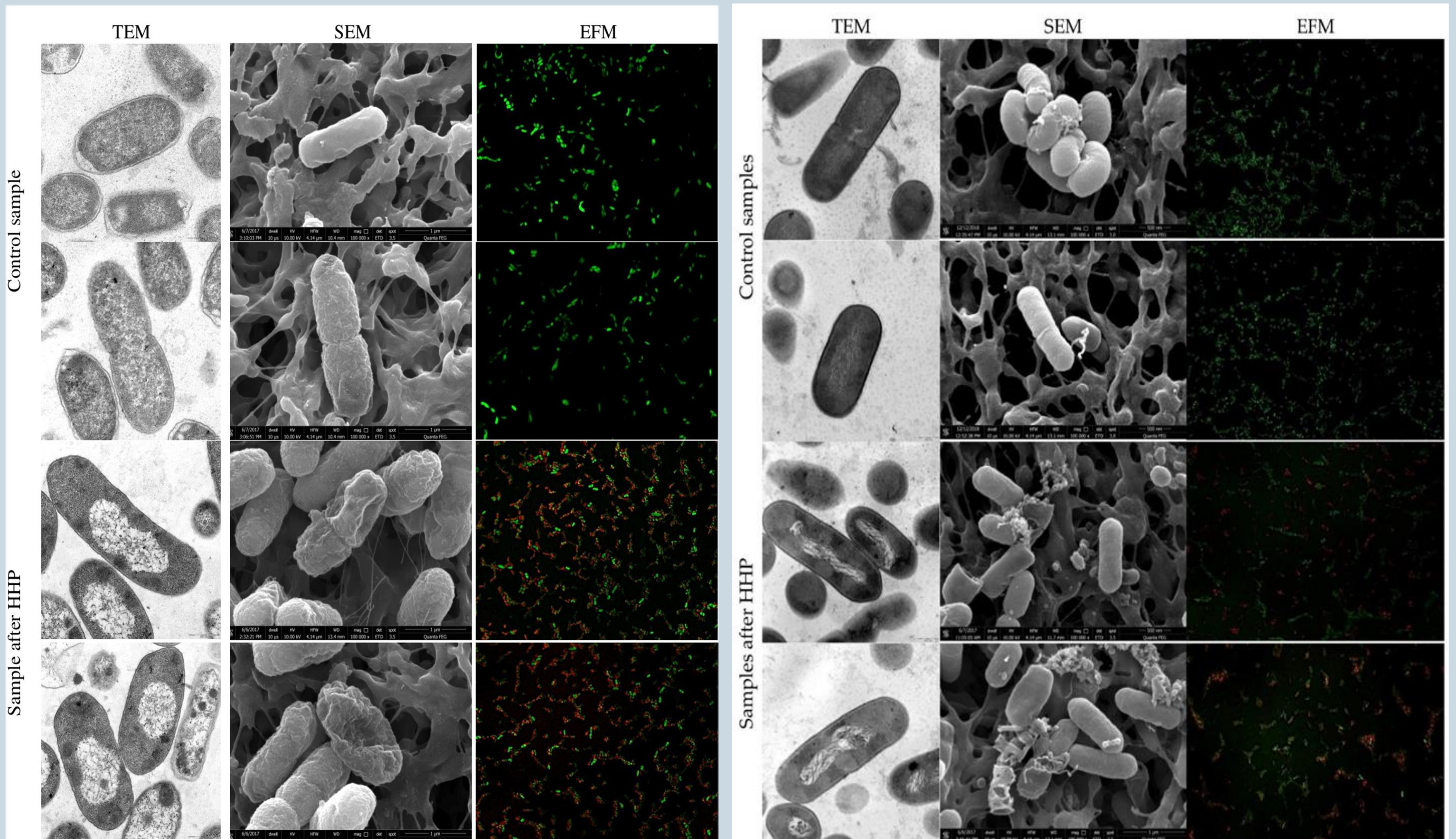
Saccharomyces cerevisiae NCFB 3191 before (on the left) and after (on the right) pressurization process visualized by SEM.



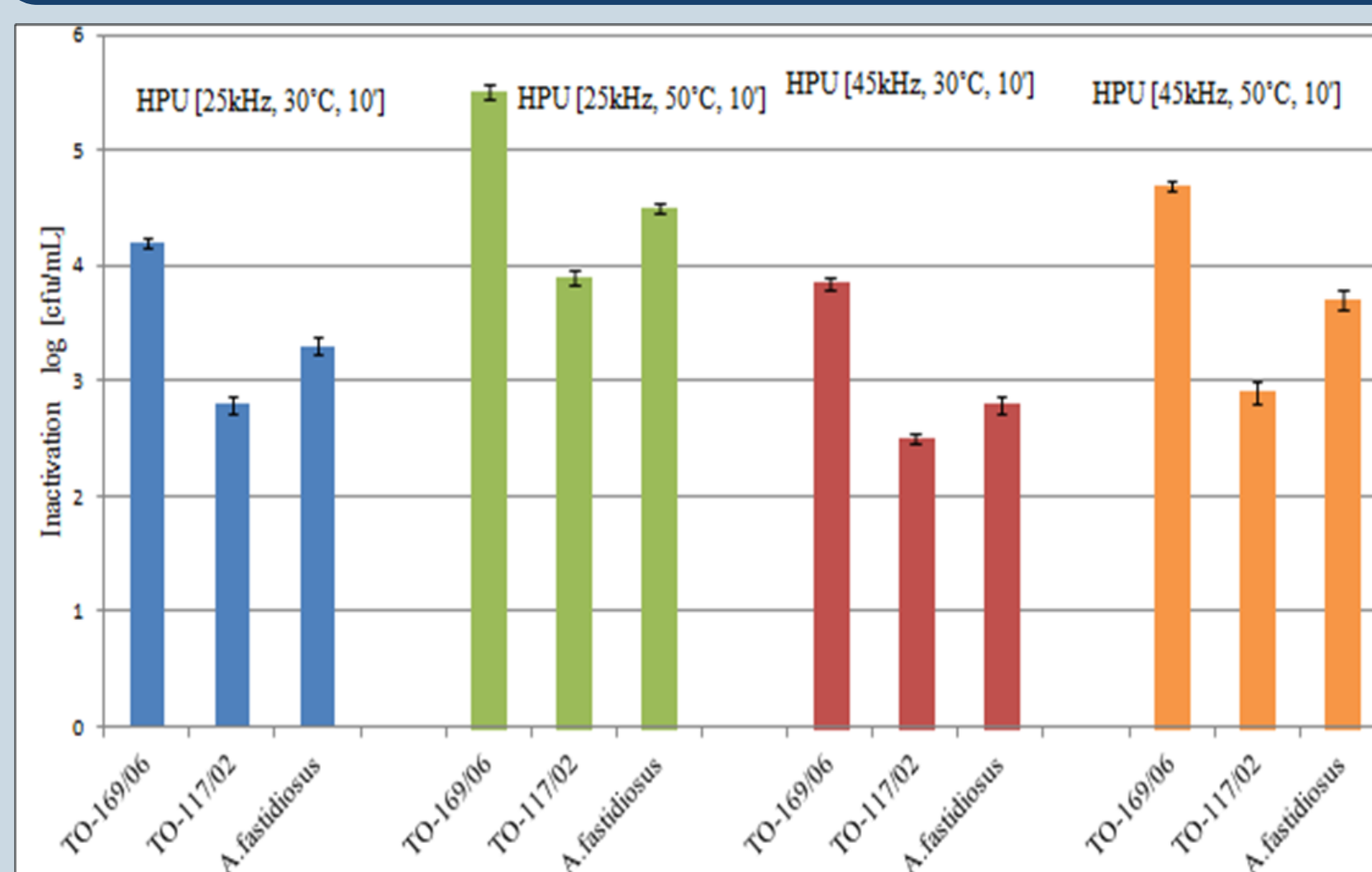
Saccharomyces cerevisiae NCFB 3191 before (on the left) and after (on the right) pressurization process visualized by TEM.



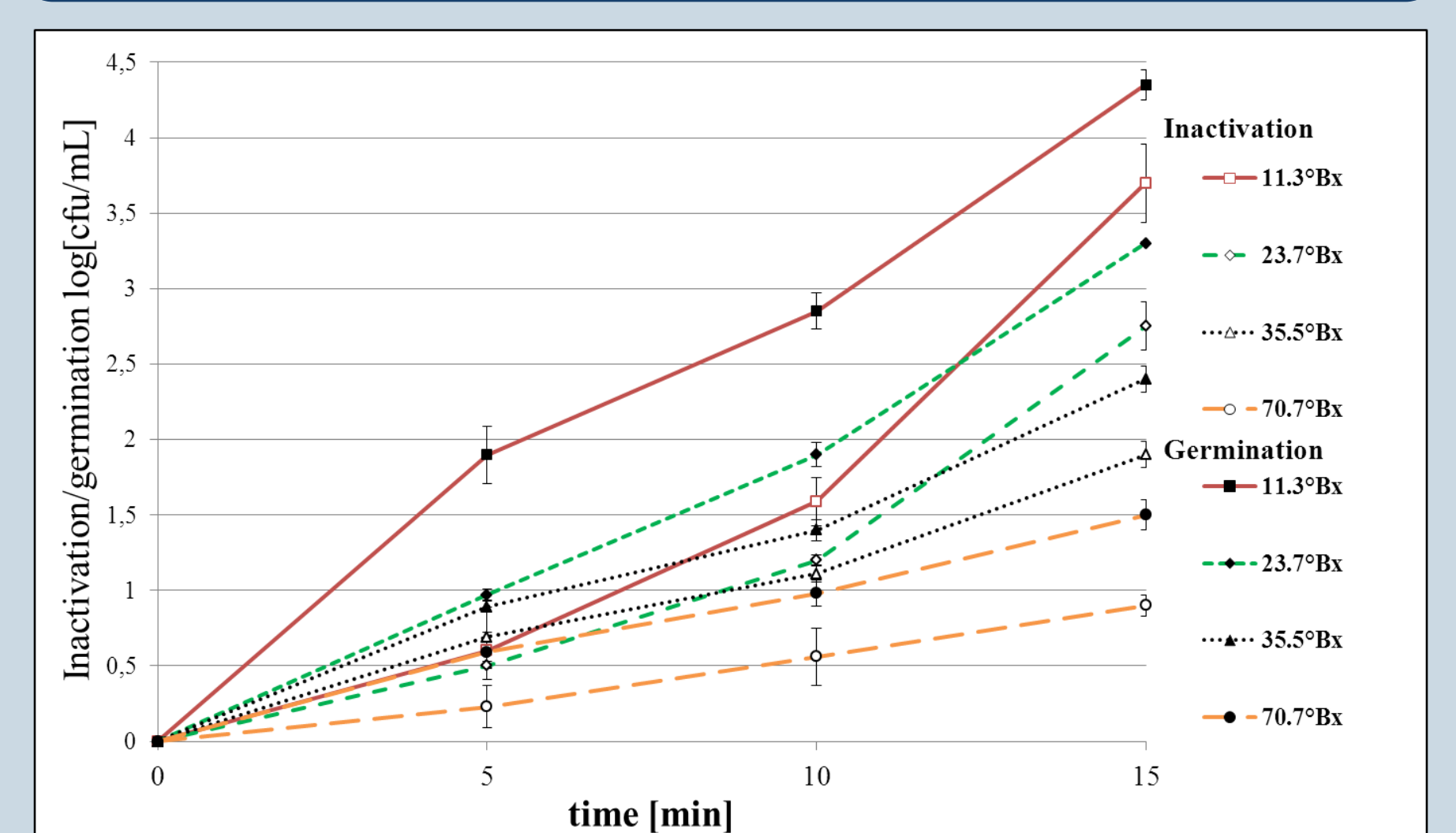
The cells of *Escherichia coli* ATCC 8739 (on the left) and *Listeria innocua* CIP80.T (on the right) before and after pressurization process visualized by TEM and SEM. Uptake of Syto[®] 9 (emission of green fluorescence) and PI (emission of red fluorescence) included in Live/Dead BacLight[™] viability kit visualized by EFM.



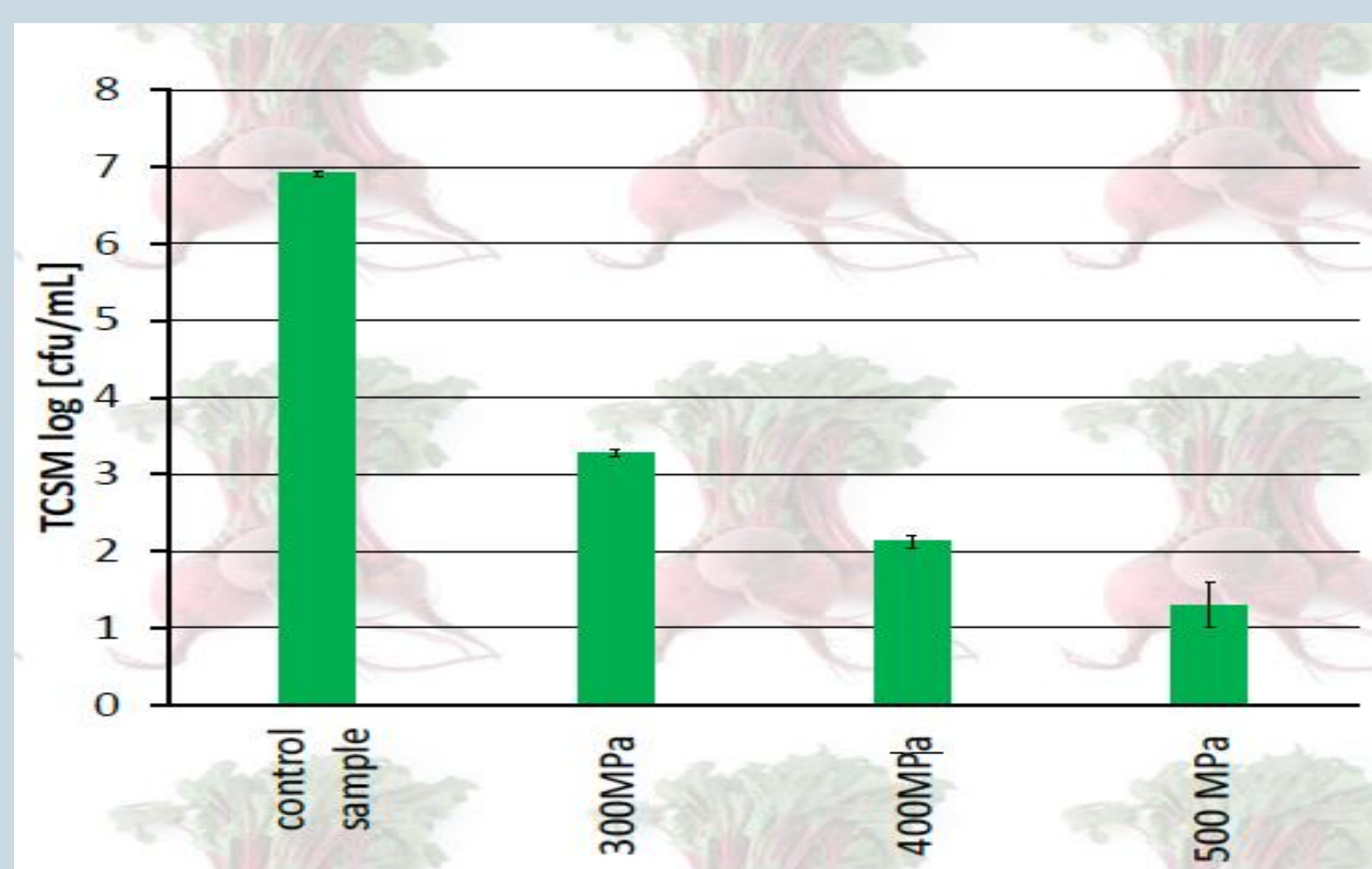
Inactivation of *Alicyclobacillus* spores in subsequent processes HHP (300 MPa, 50°C) and HPU in apple juice from concentrate.



Germination and inactivation of *A. acidoterrestris* TO-169/06 spores treated with 300 MPa at 50°C, in apple juice with various soluble solids content.



Survival of spoilage microorganisms in beetroot juice treated with HHP (10', 20°C).



Survival of native and collection yeasts strains in juices and PBS subjected to a pressure of 300 MPa at 20°C.

