

1163-65-1223

**Phindile Dumani\*** (phindile.dumani@up.ac.za), Lynnwood Road, Hatfield, Pretoria, Gauteng 0002, South Africa, and **Michael Chapwanya**. *Numerical study of microbial dormancy under environmental stress*. Preliminary report.

Dormancy is a strategy for microbial populations to survive various unfavourable conditions until the environment allows for proliferation. This state is a phase of minimal to no physical or/and metabolic activity. We present a modeling concept for the growth and decay of microorganisms that explicitly accounts for their ability to switch between active and dormant states in response to a limiting-nutrient. We then show that in conditions of nutrient limitation, oscillations can be observed, thus giving a natural description of the boom and bust phenomenon. A nonstandard finite difference scheme, dynamically consistent with the differential system is proposed. Numerical simulations supporting the effectiveness of the scheme in comparison to classical numerical methods will be provided. (Received September 15, 2020)