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Microfluidic route to generation of celloidosomes VENKATA GUNDABALA, SERGIO MARTINEZ-ESCOBAR, School of Physics, Georgia Institute of Technology, Atlanta, USA, SAMANTHA MARQUEZ, Maggie L. Walker Governor's School for Government and Internation al Studies, Richmond, VA, USA, MANUEL MARQUEZ, YNano LLC, 14148 Riverdowns South Dr., Midlothian, Virginia 23113-3796, USA, ALBERTO FERNANDEZ-NIEVES, School of Physics, Georgia Institute of Technology, Atlanta, USA, MICROFLUIDICS TEAM — Here we present a microfluidic method to generate alginate particles with a liquid core and a shell with yeast cells encapsulated in it. This particular class of celloidosomes with cells embedded into the thin shell region at the surface, allows for easy access of oxygen to the cells improving their viability. The liquid core opens the possibility of encapsulating multiple types of cells into the core and the shell. The microfluidic method involving double emulsion technology employed here ensures robust control over the size of the particles and density of the encapsulated cells. The study has shown that the stability of the inner core is very much dependent on the viscosity of the oil used for collecting the emulsion.

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