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Since I saw embryogenic cells under a binocular loupe for the first time, I am one of those fascinated by plant totipotency. How does it work ? It was in 1987 and these were carrot cells. Then my job was to apply this phenomenon to develop a method for mass micropropagation of plants, from the experimental stage to the pilot stage. I worked mainly on coffee and cocoa. I contributed to the transfer of this technology by assistance missions and by the trainings of about a dozen of scientists from coffee producing countries. More than 30 years later, I do not know more about totipotency. How does it work ? From a conceptual point of view, I'm wondering now if we would not have to learn from the world of bacteria (biofilm and quorum sensing) and the animal world (stem cells and hypoxia). I hope to have the time to say a few words about this in conclusion of my presentation.

“Plant tissue culture to support Nestlé’s Nescafé and Cocoa Plans”.

Coffee and cocoa are threatened by many factors such as aging trees and increasing exposure to biotic and abiotic stresses. In 2010, Nestlé launched two major sustainability initiatives to tackle this situation: the Nescafé and the Cacao plans. One of the objectives was the distribution to farmers of selected varieties. To support these projects, Nestlé Research -Tours developed an expertise in in vitro mass propagation for the both species. The process, based on somatic embryogenesis, was scaled-up up in liquid medium cultures. We will describe in details this propagation method applied to the both species, as well as its state-of-the-art, bottlenecks and limits.