

Botulism veterinary vaccine production in a bioreactor

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Onderstepoort Biological Products (OBP) produces a bivalent Botulism vaccine comprising of formalin inactivated toxoid of *Clostridium botulinum* type C and D for protection of cattle, sheep and goats against Botulism. OBP's current Botulism vaccine production process is based on the method developed by Sterne and Wentzel in 1950. We developed and optimised an alternative production process in bioreactors for industrial scale veterinary botulism vaccine production. Botulism toxins were produced in bench scale bioreactor (1 L) from 4 different Media [Corn steep liquor (CSL) media and other peptone-based media (Yeast Extract and Tryptone)], and the botulism toxin yield (minimum lethal dose and efficacy (*in-vivo* serum neutralisation assay) was evaluated. Peptone based media supports toxin production from *C. botulinum* in the bioreactor. However, CSL is an inexpensive source of nutrients to produce bivalent Botulism vaccines. Botulism toxins were successfully produced using CSL media at 20 L bioreactor scale.