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The Modification of Three Parameters in B2 Medium for Effective Production of Perussis Vaccine

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ABSTRACT

The objective of this work was to study the B2 medium for the pertussis vaccine production and with the different concentration of Bactocasamino acid, Starch and Yeast extract concentrations in B2 medium for the effective production of vaccine. Studied the opacity and pH changes occurred due to the variations of these components in the B2 medium. The different concentrations of components were studied out and superiority of the medium medium has been consistently observed.

Key words : *Bordetella Pertussi*, B2 medium

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Pertussis, or whooping cough is an acute infection of the respiratory tract caused by *B Bordetella Pertussis.* Whoopping cough is caused by the bacterium *B. pertussis* is very small Gram negative aerobic coccobacillus that appear sigly or in pairs *Bordetella* is placed among the Gram-Negative aerobic rods and coci called *coccobacillus* (Bloom and Lambert, 2003). *Bordetella* is not assigned to any family, whooping cough is a relatively mild disease in adults but has a significant mortality rate in infants.

The first whole cell *Bordetella* vaccine was developed in the 1930s and was in widespread use by the mild 1940 when *Pertussi* vaccine combined with *Diphtheria* Toxoid and *Tetanus* Toxoid to make the combination DTP vaccine. In 1991, DTP vaccine was licensed in the United States. The Pertussis of this vaccine is a more purified acellular version, which produces fewer side effects (Koff and Howard, 1992). The *B.pertussis* makes its way into the respiratory tract via inhalation and subsequently binds to and destroy the ciliated epithelial cells of the trachea and bronchi. It does this through the use of several toxins.

In the late 1890 s and early 1990s small gram negative rods were demonstrated in smears of nasopharyngeal materials and in sputum of patients with clinical Pertussis (Koheler and Loverde,1998).These bacteria were observed in stained sections of lung from children who had died of Pertussis. The bacteria were observed only on the ciliated epithelium of the respiratory tract and were in close association, between, and at the base of the cilia. Bordet and Gengou were successfully isolated this Gram Negative bacteria which is now called *B. pertussi* (Hewlett and Halperin, 1998).The isolation medium was rather simple and consisted of potato starch infusion, glycerol and defibrintated blood. The growth requirements of the organism are not completely understood, but it is clear that as for all members of the genus *Bordetella* there is an absolute requirement for nicotinamide, carbohydrates, lactate, pyruvate, acetate and intermediates of the Embden-Meyerhoff pathway use not utilized (Jebb and Tomlinson, 1957).

Media first contained blood, serum or other biological materials until it was realized that unsaturated fatty acids, which are present agar, peptones, cotton stoppers and on glassware are produced endogenously during growth are toxic to *B. Pertussis*. Additives such as starch, charcoal, union exchange resins, blood cells, albumin, methyl-α-cyclodextrin, adsorb fatty acids and permit the typical growth of *B. Pertussis*.

Infection with pertussi induces immunity, but not lasting protective immunity, and a second attack is possible. Efforts to develop an inactivated whole-cell pertussis vaccine began soon after *B. pertussis* was grown in pure culture in 1906. In the 1920s Dr. Louis Sauer