

## Effect of a combined probiotic, prebiotics and micronutrients supplementation on the recovery from acute infantile diarrhea

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### Abstrak

Diarrheal disease remains an important public health problem in developing countries (Black, 1993) and is enormously associated with one-fourth of all deaths in children less than 5 years in developing countries (Richards et. at, 1993). Despite a remarkable declining in mortality rate, the morbidity rate of acute diarrhea of under five children is still fairly high (Murray, 1992). Alarcon et. al. (1991) reported that each year, diarrheal disease causes approximately more than 1 billion episodes of illness. Therefore, the reported attack rates range from 1 to 12 episodes per child per year with a global average of 3 episodes per child (Richards et. al, 1993) and nearly 5 millions deaths worldwide in children less than 5 years (Shamir, 1998). In Indonesia, the incidence of diarrhea is accounted for up to 200-400 per 1000 population per year; 60-80% of them are under five, mostly infants (Lubis, 1992). Rotavirus is the most common cause of acute diarrheal disease in infants. It is the most commonly identified enter pathogens for infants who admitted to hospital in the USA and many other countries (Saavedra et. al., 1994) included Indonesia, (Soenarto, 1997). In USA accounts for up to 50% of the cases of children hospitalized with diarrhea and dehydration (Cohen, 1991) and is responsible for approximately 1 million cases of severe infantile diarrhea and up to 150 deaths annually (Guarino et.al.,1994). In Indonesia accounts for up to 16% of childhood diarrhea in urban area of North Jakarta and 19-40% of chldhood diarrhea age 0-36 months in Bandung, West Java (Yuwono, 1993).

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The incidence of diarrheal disease is higher and the severity of the illness is greater in infants than in older children and adults. Several major factors become predisposed to an increased frequency of diarrheal diseases in infants are increased fecal-oral contamination and infants have a relatively unchallenged immune system that has not previously been exposed to many pathogens and has not acquired protective antibodies. Immune system tolerance of life to some polysaccharide antigens in the first year may diminish the infant's ability to defend against intestinal infections (Cohen, 1991). Non-breastfed infants are at greater age of experiencing diarrhea than those who are partially breast-fed, however infants who are partially breast-fed are at greater risk than those who are exclusively breast-fed (Lubis, 1992). The global diarrheal disease control programs have concentrated almost exclusively on the prevention and treatment of dehydration by promoting appropriate fluid and electrolyte therapy, such as increased of oral rehydration solution-ORS (Alarcon, et. al, 1991). ORS has been considered by World Health Organization as the cornerstone of global efforts to reduce mortality from acute diarrhea (Richards et. al, 1993; Behrens, 1993). Until recently, however, more attention has been directed to the nutritional complications of diarrhea (Alarcon, et. al, 1991).