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Effects of oral administration of glycerol on energy status and debilitating findings in calves

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Changes in energy and health statuses were evaluated in calves with short-term fasting and debilitating diarrhea to investigate the effects of oral administration of glycerol. Six Jersey calves (male, 2-4 months of age) were divided into three groups, and glycerol was orally administered to calves (200 ml, 50 ml, and 0 ml as the control) by catheter. The experiment was repeated three times. Blood glucose concentration peaked at 2 hours after administration, and it lasted until 6 hours after administration. Increase in blood glucose, decrease in FFA, and these durations were facilitated concurrently with the increase in volume of glycerol administration. Therefore, energy supplementation might be achieved by increasing blood glucose followed by oral administration of glycerol (50-200 ml) in calves with 2-4 months of age. On the other hand, debilitating findings in diarrheal calves (n=11), such as decrease and absence of activity, dysstasia and unstable gait, and vitality, were improved in 10 calves, and dysstasia and staggering were recovered in 3 calves by 200 ml glycerol administration using catheter. Furthermore, feces color (n=3), physical nature (n=8), and odors (n=3) were also improved on the following day of glycerol administration. From these findings, it was revealed that glycerol administration of 200 ml to debilitated calves by chronic diarrhea might accelerate the recuperation from the debilitation and diarrhea.

Biography

Shigeru Sato earned his MS degree in Pathology of Bovine Leukemia from Iwate University in 1980, thereafter he worked for Miyagi Prefectural Federation of Agricultural Mutual Aid Association from 1980-2006. He earned his PhD in Ruminant Bacteria and Immune Response of Calves from Tohoku University in 1991, and also in Immunity of Periparturient Cows from Kitasato University in 1998. Now, he is a faculty member of Iwate University, and teaches a course on food animal internal medicine and bovine clinics.

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