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The Effects of Dietary Synbiotic Complex Composed of Anaerobic Microbes on Dry Matter Disappearance of Fermented TMR

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This experiment was conducted to evaluate the possibility of using synbiotic complexes composed of anaerobic micro-organism (bacteria, yeast and mould) as a stater inoculant of fermented TMR (total mixed ration) for ruminant. Synbiotic complexes were examined for the influences on dry matter disappearance rate of fermented TMR. One hundred and ninety-two nylon bags of 3g volume including 8 treatments (① un-treated synbiotics, ② bacterial synbiotics, ③ yeasty synbiotics, ④ mouldy synbiotics, ⑤ bacterial and yeasty synbiotics, ⑥ bacterial and mouldy synbiotics, ⑦ yeaty and mouldy synbiotics, ⑧ bacterial, yeasty and mouldy synbiotics.) ×8 incubation times (h 1, 3, 6, 9, 18, 24, 48 and 72) with triplicates each were processed *in situ* trial and then NDF and ADF values were measured. Dry matter disappearance rates of ④ mouldy synbiotics and ⑧ bacterial, yeasty and mouldy synbiotics after 72 hours were significantly higher than those of others with 80.68% and 80.20% respectively and ② bacterial synbiotics was the lowest with 70.99%. A nutrient remaining in ⑧ bacterial, yeasty and mouldy synbiotics can be the lowest under the conditions of NDF and ADF values on h 72.

Key words: TMR, NDF, ADF, sinbiotic

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Effects of 1,3-Dichloro-2-propanol on Pregnant Dams and Embryo-Fetal Development in Rats

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This study investigated the potential adverse effects of 1,3-dichloro-2-propanol (1,3-DCP) on pregnant dams and the embryo-fetal development after maternal exposure on gestational days (GD) 6 through 19 in Sprague-Dawley rats. The test chemical was administered to pregnant rats by gavage at dose levels of 0, 10, 30, and 90 mg/kg per day. All dams underwent Caesarean sections on GD 20, and their fetuses were examined for any morphological abnormalities. Maternal toxicity was noted at 90 mg/kg/day. Clinical manifestations of toxicity included clinical signs of illness, lower body weight gain, decreased food intake, and increases in the weight of the adrenal glands and the liver. Signs of developmental toxicity included decreases in fetal body weight and increases in visceral and skeletal variation. Decreased food intake and increased hepatic weight were observed at 30 mg/kg/day. No adverse maternal or developmental effects were observed at 10 mg/kg/day. These results revealed that a 14-day repeated oral dose of 1,3-DCP was minimally embryotoxic but not teratogenic at a maternal toxic dose (90 mg/kg/day), and was not embryotoxic at a minimally maternal toxic dose (30 mg/kg/day) in rats. It is concluded, therefore, that the developmental findings observed in the present study are secondary effects to maternal toxicity. Under these experimental conditions, the no-observed-adverse-effect level of 1,3-DCP is considered to be 10 mg/kg/day for dams and 30 mg/kg/day for embryo-fetal development.

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Key words: 1,3-Dichloro-2-propanol; Pregnancy; Developmental toxicity; Teratogenicity.