



The effect of chlorine dioxide (ClO₂) in drinking water on the growth of pigs

KC Turner, JE Link, SJ Bursian, GM Hill, BE Straw, BS Gay and DW Rozeboom. The effect of chlorine dioxide (ClO₂) in drinking water on the growth of pigs. 2011. *Journal of Animal Science*, 89(2):135.

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A total of 294 pigs (Yorkshire x [Yorkshire x Landrace] and Duroc x [Yorkshire x Landrace]; initially 6.2 kg BW) were used to determine: 1) if ClO₂ in the drinking water improves growth performance of from 3 to 9 wk of age; 2) if exposure to ClO₂ in the drinking water is potentially toxic; and 3) if finishing growth performance is affected by the inclusion of ClO₂ in nursery drinking water. At weaning, pigs were blocked by wt and allotted by litter and sex to the 3 experimental treatments: 1) control, 2) ClO₂ in drinking water at 25 mg/L, or 3) antimicrobial (carbadox) in the diet at 55 ppm. Pharmacological dietary concentrations of Cu and Zn were not used. Twenty-one pens and 7 pigs per pen were used in each of 2 replicates. Blood was collected by vena puncture from 3 randomly-selected pigs/pen on d 0 and 42 of the treatment period, and from 12 randomly-selected pigs per treatment group 30 d post-nursery treatment, for determination of hemoglobin and thyroid hormone concentrations, and red blood cell glutathione peroxidase (GSH-Px) activity. After the nursery treatment period, pigs were mixed, moved to grow-finish rooms, and reared similarly until marketing.

During the 42-d nursery period, there were no differences in ADG, ADFI or F:G between treatments, overall or in any of the 4 dietary phases (4, 7, 14, and 17 d, respectively). Hemoglobin concentration, GSH-Px activity, and total thyroxine, total triiodothyronine, free thyroxine, and free triiodothyronine concentrations did not differ among treatments at any sampling time. Pigs receiving ClO₂ or carbadox in the nursery were heavier than control pigs after 91 d of the finishing period ($P < 0.01$; 96.8, 97.0 and 92.4 kg, respectively). In the nursery, growth of pigs was unaffected by the inclusion of ClO₂ in drinking water and there was no hematological evidence of toxicity.

However, results suggest that treating nursery drinking water with ClO₂ may improve growth of pigs later during the finishing period.