

In Vivo Insulinomimetic Activity of Bis(1,2-dihydro-4,6-dimethyl-2-oxo-1-pyrimidinolato)oxovanadium(IV)

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There has been growing concern with vanadyl complexes as chemotherapeutic agents for diabetes mellitus (DM). Previously the insulinomimetic activity of vanadyl complexes with 4,5,6-trisubstituted 1-hydroxy-2(1*H*)-pyrimidinones was evaluated by *in vitro* experiment, in which the IC₅₀ value (50% inhibition concentration) of the release of free fatty acid (FFA) from isolated rat adipocytes treated with epinephrine was estimated, and bis(1,2-dihydro-4,6-dimethyl-2-oxo-1-pyrimidinolato)oxovanadium(IV) (**1**) showed the highest insulinomimetic activity. We describe here *in vivo* insulinomimetic activity of complex (**1**) using type 1 DM model rat, STZ-rat.

During daily intraperitoneal injections of complex (**1**) for 14 days, the body weight of STZ-rats showed no difference compared to the control (not shown here). The blood glucose levels of STZ-rats treated with complex (**1**) dropped from hyperglycemic levels to a nearly normal levels (under 250 mg/dL) after 2-3 days, and these levels remained during an administration period of 14 days (Fig. 1). Further, oral glucose tolerance test (OGTT) was performed after treatment with the complex. As shown in Fig. 2, the blood glucose levels of the control were elevated to 500 mg/dL at 30 min after, while those of the complex (**1**)-treated STZ-rats kept lower than 200 mg/dL, indicating that the vanadyl complex (**1**) exhibited the anti-diabetic activity.

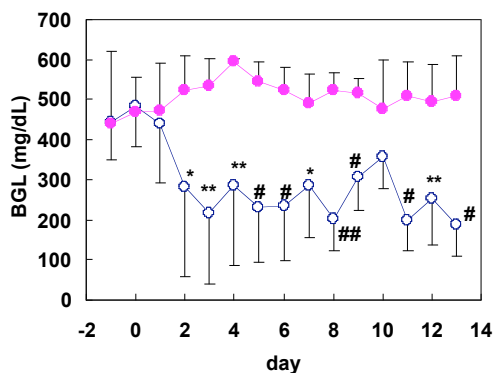
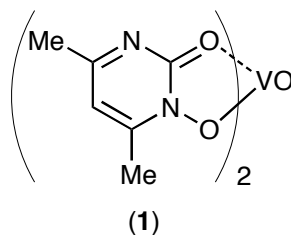


Fig. 1



○ : vanadyl complex (**1**); ● : control

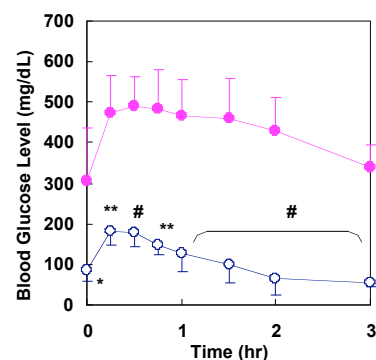


Fig. 2