Reactivity of Oral Anti-Diabetic Vanadium Complexes in Gastrointestinal Media: An X-ray Absorption Spectroscopic Study

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SUPPLEMENTARY INFORMATION

Composition of Semi-Synthetic Meals (see Table 1 in the main text)**.**

Meal 1: ("liquid breakfast" from Sanitarium, Australia),[39] containing breakfast cereal (5%, including wheat maltodextrin, chicory inulin, corn syrup solids, maize starch), skim milk powder, cane sugar, soy protein, sunflower oil, fructose, minerals (NaCl, Ca^{2+} and Na^{+} phosphates), flavors, food acid, vegetable gums, vitamins (C, E, niacin, A, B12, B6, B2, B1, folate) and filtered water (pH ~ 6.7). Nutritional information (per 100 mL): energy, 340 kJ; protein, 3.7 g; total fat, 1.5 g (saturated, 0.2 g; monounsaturated, 0.4; polyunsaturated, 0.9); carbohydrates, 12.5 g (including sugars, 7.4 g); dietary fibre, 1.5 g; sodium, 75 mg; potassium, 195 mg; calcium, 160 mg; phosphorus, 100 mg; vitamin A, 51 μg; thiamin, 0.11 mg; riboflavin, 0.17 mg; niacin, 1.0 mg; vitamin V12, 0.36 μg; vitamin C, 4.0 mg; folate, 40 μg; and vitamin B6, 0.16 mg.

Meal 2: A mixture of skim milk powder (4.5 g), soluble starch (8.5 g), canola oil (2.5 g), soy lecithin (2.0 g), K_2HPO_4 (0.35 g), $CaCl_2{\cdot}2H_2O$ (0.15 g) and milli-Q H_2O (25 mL) was homogenized with a food blender (pH ~ 6.8).[14, 15]

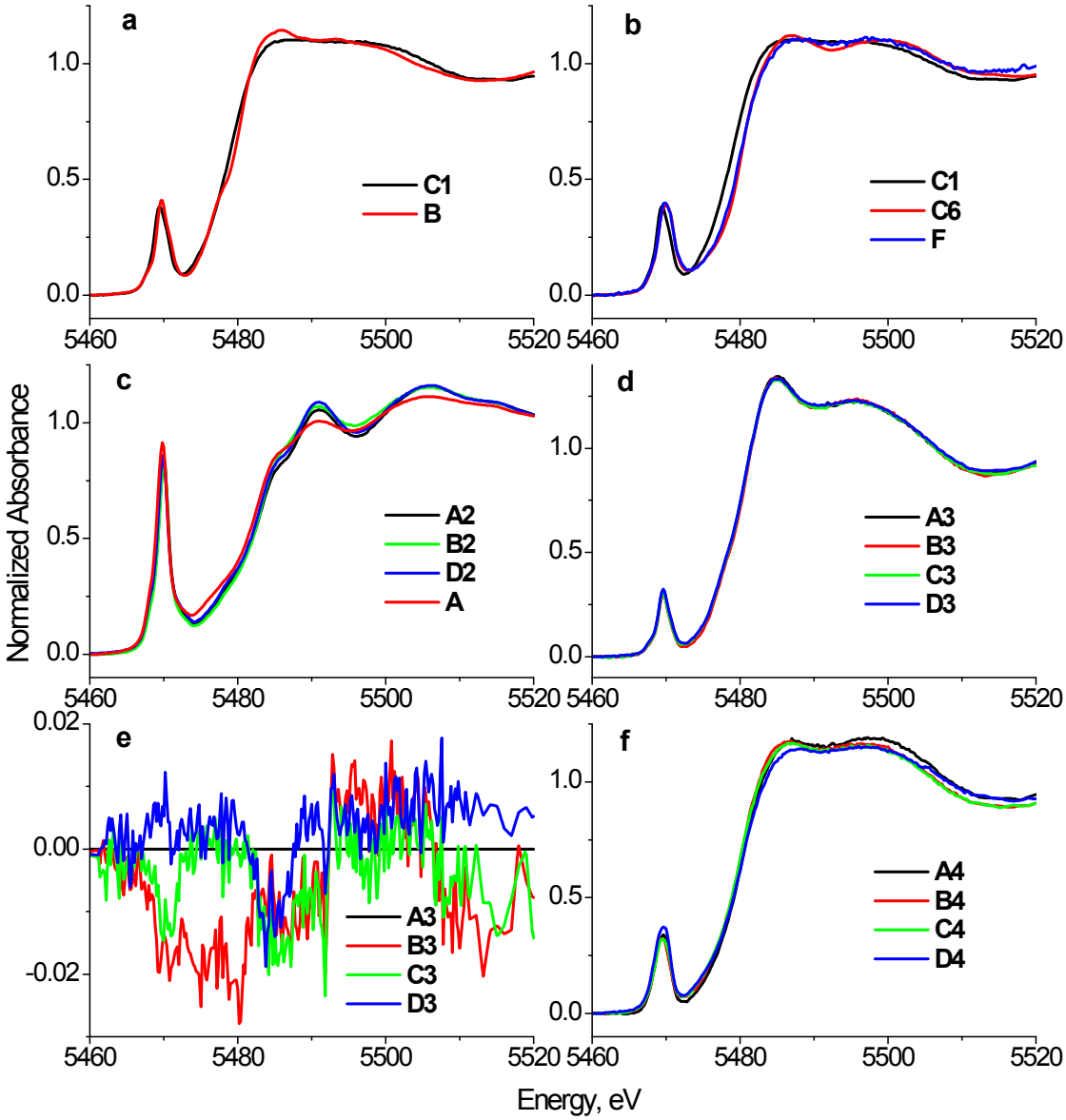

Figure S1. Comparison of XANES the reaction products of **A-D** with artificial digestion systems with those of model V complexes (**a-d**, **f**), and difference spectra for **A3-D3** (**e**). Designations of the samples correspond to those in Chart 1 and Table 1, main text. All the data were collected at ~295 K in fluorescence detection mode for solid samples (mixtures of model complexes with BN or freeze-dried reaction mixtures; see Experimental for details).

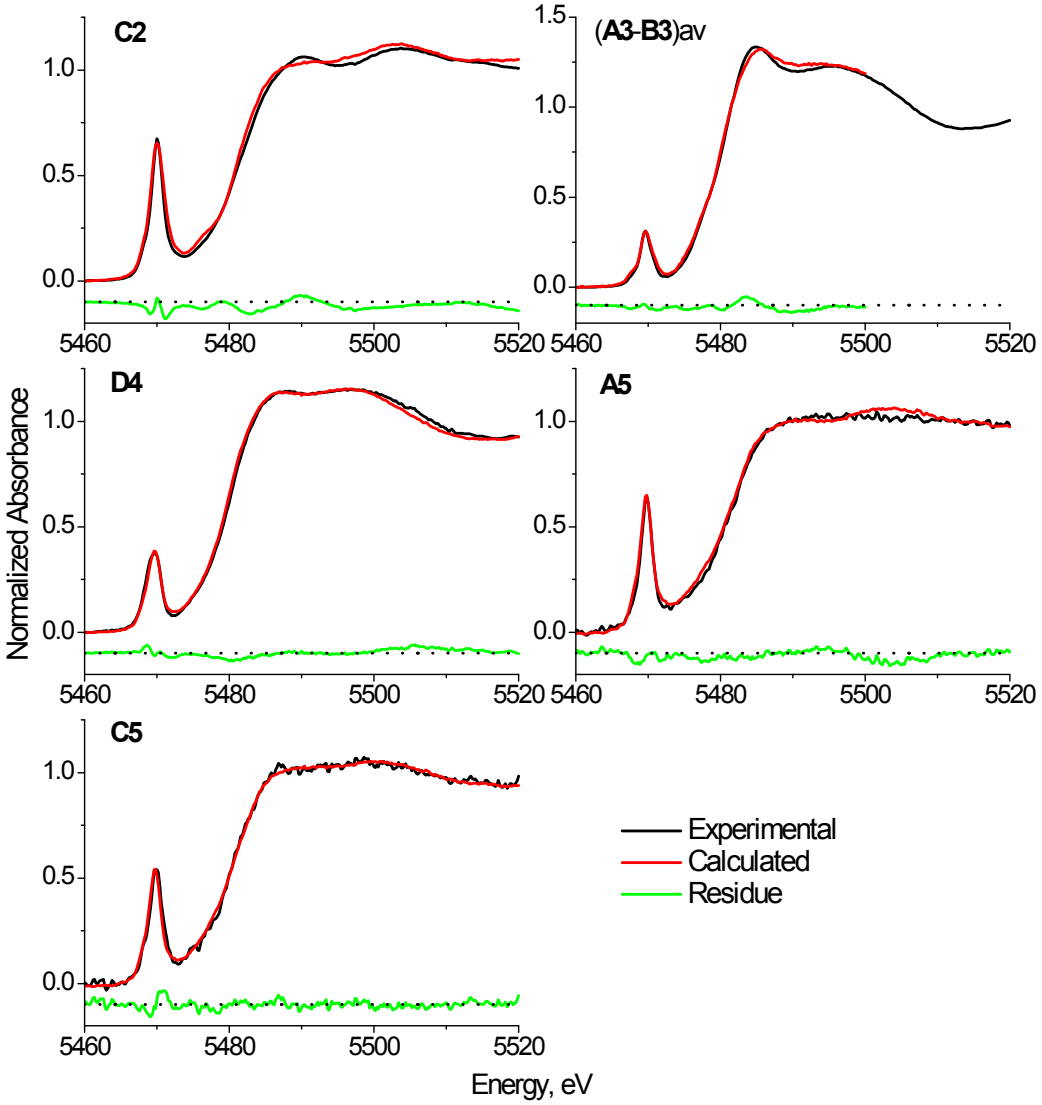

Figure S2. Results of multiple linear regression analyses of XANES for selected reaction mixtures (see Table 1 in the main text for fit details).