Supplementary information

Mechanism of one-electron oxidation of metformin in aqueous solution.

P. Trouillas, C. Marchetti, D. Bonnefont-Rousselot, R.Lazzaroni, D. Jore, M. Gardès-Albert, F. Collin.

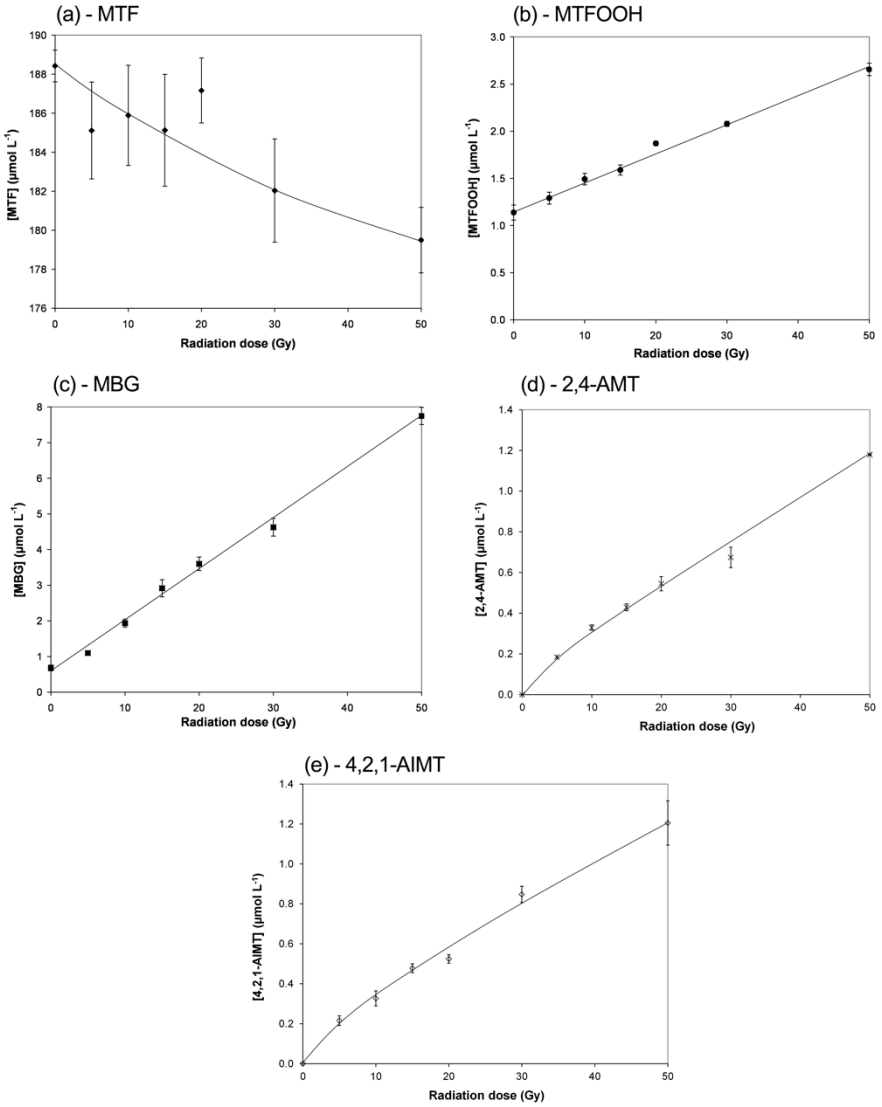

Figure S1. Consumption of MTF and production of radical-induced oxidation products at pH 11.6. Remaining non-oxidized MTF (a) and generated MTFOOH (b), MBG (c), 2,4-AMT (d) and 4,2,1-AIMT (e) as a function of the radiation dose (I = 7.5 Gy min^{-1}). Aqueous aerated solutions of 200 µmol L^{-1} MTF at pH 11.6, irradiated at 5, 10, 15, 20, 30 and 50 Gy (+ control, 0 Gy). MTF = metformin; MTFOOH = hydroperoxide of metformin; 2,4-AMT = 2-amino-4-methylamino-1,3,5-triazine; 4,2,1-AIMT = 4-amino-2-imino-1-methyl-1,2- dihydro-1,3,5-triazine; MBG = methylbiguanide. Results expressed as mean ± SD of at least 5 independent experiments.

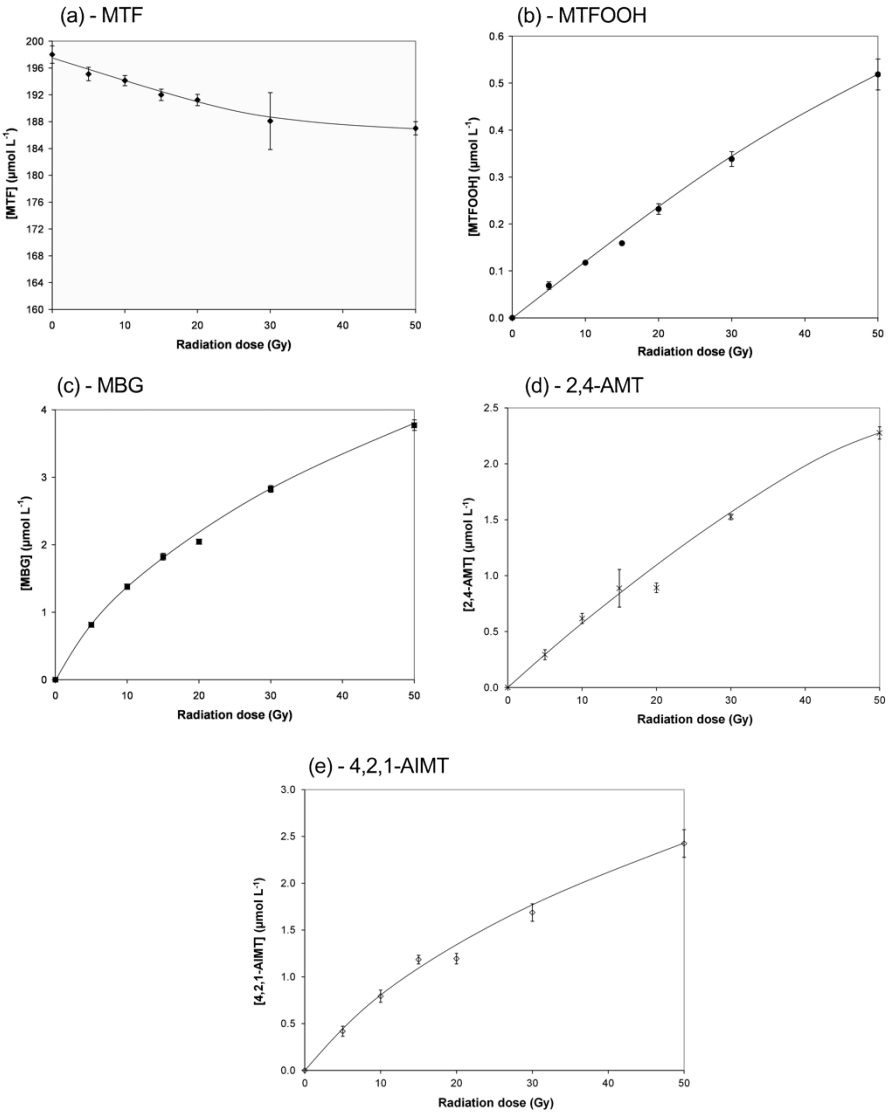

Figure S2. Consumption of MTF and production of radical-induced oxidation products at pH 7.15. Remaining non-oxidized MTF (a) and generated MTFOOH (b), MBG (c), 2,4-AMT (d) and 4,2,1-AIMT (e) as a function of the radiation dose (I = 7.5 Gy min^{-1}). Aqueous aerated solutions of 200 µmol L^{-1} MTF at pH 7.15, irradiated at 5, 10, 15, 20, 30 and 50 Gy (+ control, 0 Gy). MTF = metformin; MTFOOH = hydroperoxide of metformin; 2,4-AMT = 2-amino-4-methylamino-1,3,5-triazine; 4,2,1-AIMT = 4-amino-2-imino-1-methyl-1,2- dihydro-1,3,5-triazine; MBG = methylbiguanide. Results expressed as mean ± SD of at least 5 independent experiments.

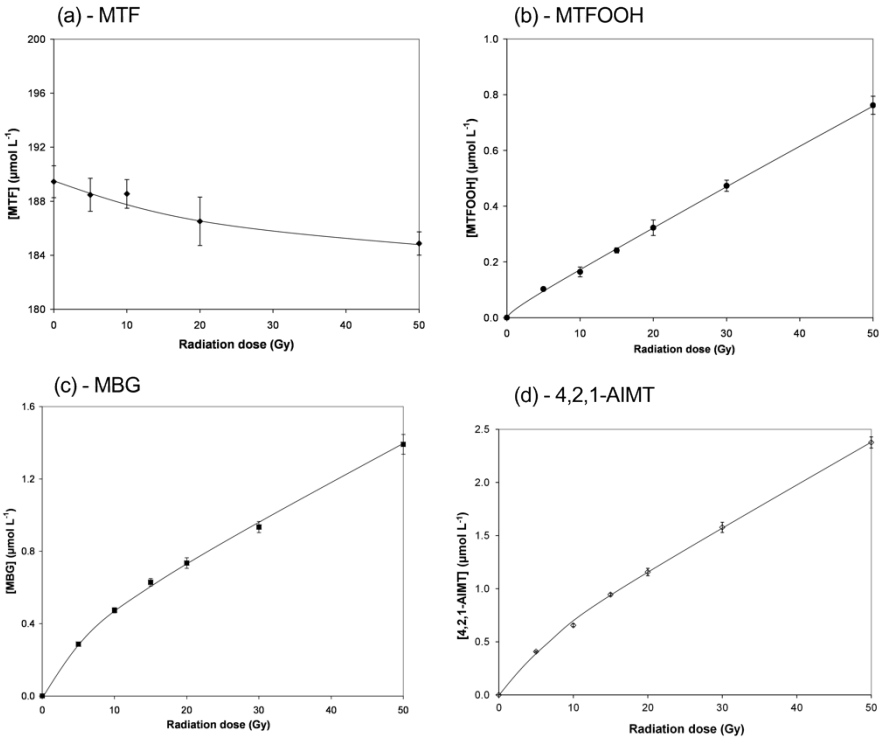

Figure S3. Consumption of MTF and production of radical-induced oxidation products at pH 2.8. Remaining non-oxidized MTF (a) and generated MTFOOH (b), MBG (c) and 4,2,1-AIMT (d) as a function of the radiation dose (I = 7.5 Gy min^{-1}). Aqueous aerated solutions of 200 µmol L^{-1} MTF at pH 2.8, irradiated at 5, 10, 15, 20, 30 and 50 Gy (+ control, 0 Gy). MTF = metformin; MTFOOH = hydroperoxide of metformin; 4,2,1-AIMT = 4-amino-2-imino-1-methyl-1,2- dihydro-1,3,5-triazine; MBG = methylbiguanide. Results expressed as mean ± SD of at least 5 independent experiments.