

FATE OF PRIONS IN SOIL: INTERACTIONS OF RecPrP WITH ORGANIC MATTER OF SOIL AGGREGATES AS REVEALED BY LTA-PAS

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Figure S1, page S2: Kinetics of organic C and N removal in natural aggregates from CM soil;

Figure S2, page S2: Kinetics of organic C and N removal in natural aggregates from SS;

Figure S3, page S3: Adsorption kinetics of RecPrP on CM and LTACM soils at plateau;

Figure S4, page S3: PAS-FTIR-spectra of SS, SS after LTA treatment and PAS-FTIR difference spectrum;

Figure S5 page S4: PAS-FTIR-spectra of SS after RecPrP adsorption, SS and PAS-IR difference spectrum;

Table S1, page S4: Soil characteristics;

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Table S3, page S5: Soil Mineralogy.

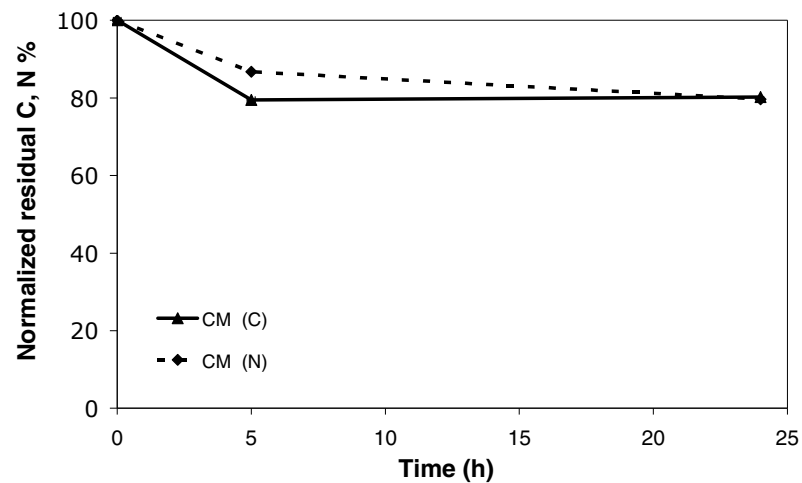


Figure S1. Kinetics of organic C and N removal in natural aggregates from CM soil.

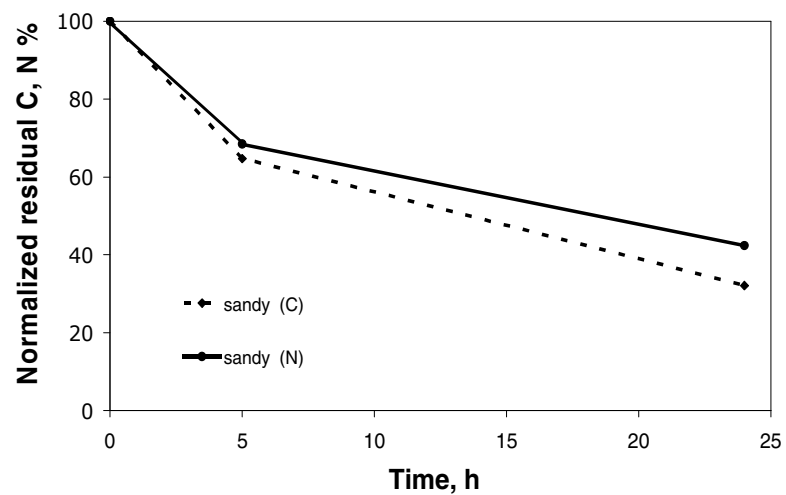


Figure S2. Kinetics of organic C and N removal in natural aggregates from SS.

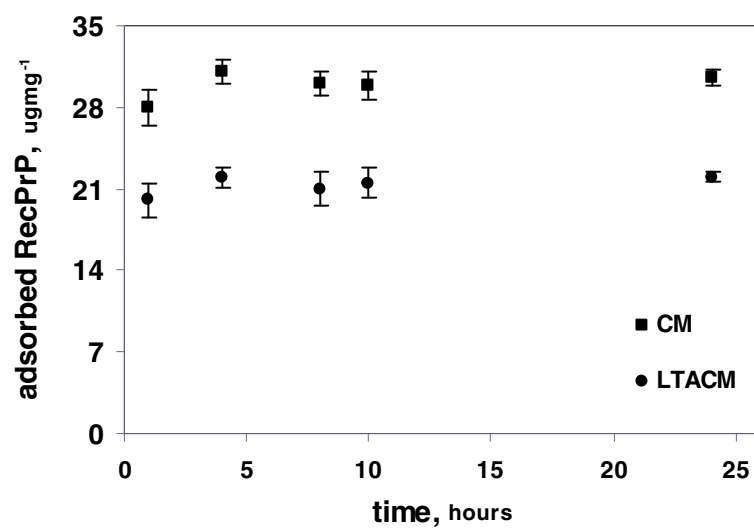


Figure S3. Adsorption kinetics of RecPrP on CM and LTACM soils at plateau.

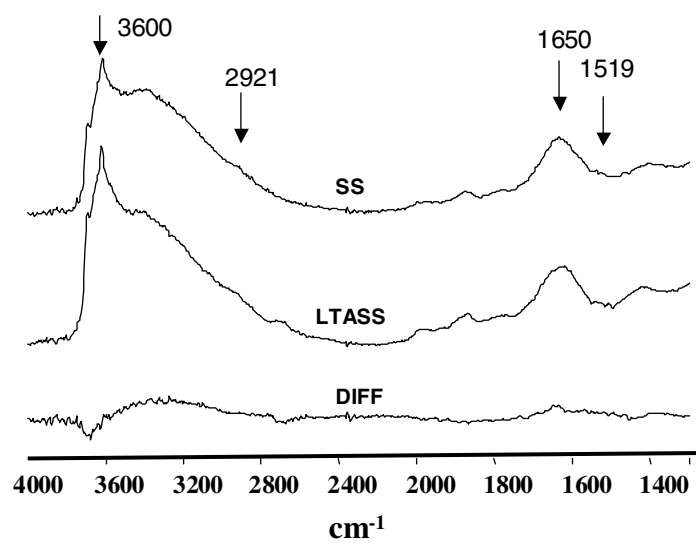


Figure S4. PAS-FTIR-spectra of SS, SS after LTA treatment and PAS-FTIR difference spectrum.

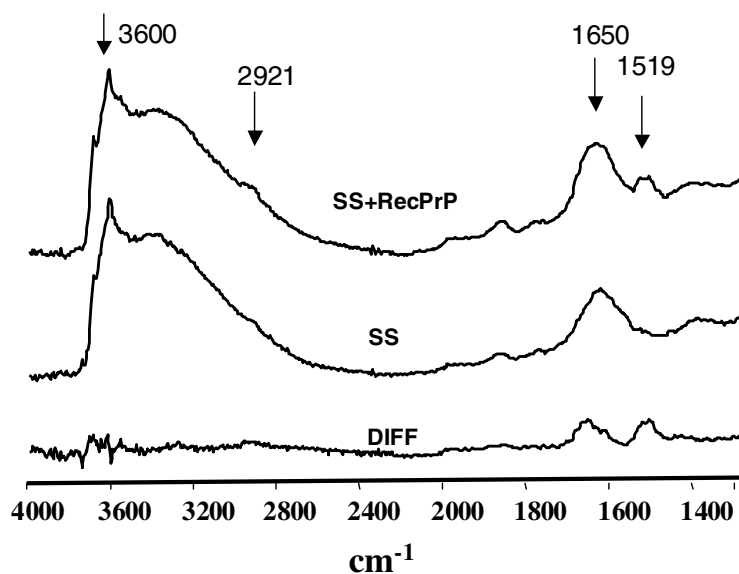


Figure S5. PAS-FTIR-spectra of SS after RecPrP adsorption, SS and PAS-IR difference spectrum.

| TableS1 | | |
|--|-----------------------|--|
| Soil characteristics | CM^a | SS^b (Scottish sand) |
| pH | 5.2 | 6.98 |
| Particles Size | | |
| %clay (<0.002mm) | 23 | 6.4 |
| %silt (0.002-.02mm) | 31 | 11.9 |
| %sand (0.02-2.0mm) | 46 | 81.7 |
| texture | loamy | loamy sand |
| OC content, mg g⁻¹ | 33±1.4 | 17.5 |
| CEC, cmol_cKg⁻¹ | 28.6 | 1.89 |
| Specific Surface Area, m² g⁻¹ | 27.7±0.1 | 20.8±1.1 |
| Pore Specific Volume, mm³ g⁻¹ | 35.6±0.8 | 25.4±0.5 |

^aAll analyses of CM soil and Specific Surface Area, Pore Specific Volume of Scottish soil, were carried out in our laboratory

^b Data from Cooke, C.M.; Rodger, J.; Smith, A.; Fernie, K.; Shaw, G.; Somerville, R.A. Fate of prions in soil: detergent extraction of PrP from soils. *Environ. Sci. Technol.* **2007**, 41(3), 811-817).

Table S2. Organic C and N removal in native SS and CM aggregates

| Sample s | Treatment time h | Residual C mg g ⁻¹ | C removed % | Residual N mg g ⁻¹ | C/N Ratio | Specific Surface Area m ² g ⁻¹ | Pore Specific Volume mm ³ g ⁻¹ |
|-------------|------------------------|-------------------------------------|----------------|-------------------------------------|-----------|--|--|
| CM | 0 | 33±1.4 | - | 2.1±0.1 | 16±1.4 | 27.7±0.1 | 35.6±0.8 |
| | 5 | 26±1.5 | 21 | 1.9±0.1 | 14±1.4 | 28.7±0.3 | 38.8±0.2 |
| | 24 | 26±0.1 | 21 | 1.7±0.1 | 15±0.1 | - | - |
| SS | 0 | 8±0.2 | - | 1±0.1 | 8±0.9 | 20.8±1.1 | 25.4±0.5 |
| | 5 | 5±0.1 | 35 | 0.6±0.1 | 8±1.3 | 21.3±0.8 | 26.3±0.4 |
| | 24 | 3±0.4 | 68 | 0.4±0.1 | 7±2.3 | - | - |

TableS3. Soil Mineralogy

| Mineralogy (mass percent) | CM | SS |
|---------------------------|----|------|
| Chlorite | 10 | 9.4 |
| illite/IS/Mica | 8 | 9.1 |
| feldspar | 22 | 16.8 |
| quartz | 60 | 48.7 |
| caolinite | - | 8.1 |
| pyroxene | - | 6.6 |