



## *Supplement of*

# **Isotopic exchangeability reveals that soil phosphate is mobilised by carboxylate anions, whereas acidification had the reverse effect**

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Table S1

Data shown in Figure 1. Ratio  $x/[P]$  for each of the soils with addition of various concentrations of sodium salt of oxalate, citrate or chloride with no acidification or acidification by 0.5 or 1 pH units.

| $\Delta pH$ | [salt] / N | Salt     | $x/[P] / \text{dm}^3 \text{kg}^{-1}$ |                  |                |              |
|-------------|------------|----------|--------------------------------------|------------------|----------------|--------------|
|             |            |          | Cazeville                            | Château Fourques | Montana Colera | Restinclière |
| 0           | 0          | -        | 1257                                 | 288              | 80             | 290          |
| -0.5        | 0          | -        | 2115                                 | 531              | 164            | 427          |
| -1          | 0          | -        | 2236                                 | 374              | 198            | 314          |
| 0           | $10^{-4}$  | Oxalate  | 1219                                 | 308              | 102            | 280          |
| -0.5        | $10^{-4}$  | Oxalate  | 2201                                 | 558              | 210            | 435          |
| -1          | $10^{-4}$  | Oxalate  | 2081                                 | 394              | 202            | 319          |
| 0           | $10^{-3}$  | Oxalate  | 900                                  | 235              | 58             | 203          |
| -0.5        | $10^{-3}$  | Oxalate  | 2151                                 | 555              | 160            | 436          |
| -1          | $10^{-3}$  | Oxalate  | 1880                                 | 342              | 168            | 283          |
| 0           | $10^{-2}$  | Oxalate  | 209                                  | 46               | 15             | 42           |
| -0.5        | $10^{-2}$  | Oxalate  | 1001                                 | 339              | 43             | 252          |
| -1          | $10^{-2}$  | Oxalate  | 1140                                 | 436              | 72             | 382          |
| 0           | $10^{-4}$  | Citrate  | 1189                                 | 300              | 93             | 276          |
| -0.5        | $10^{-4}$  | Citrate  | 2188                                 | 547              | 178            | 433          |
| -1          | $10^{-4}$  | Citrate  | 2166                                 | 401              | 206            | 325          |
| 0           | $10^{-3}$  | Citrate  | 1168                                 | 401              | 87             | 374          |
| -0.5        | $10^{-3}$  | Citrate  | 1942                                 | 471              | 138            | 408          |
| -1          | $10^{-3}$  | Citrate  | 1840                                 | 346              | 150            | 272          |
| 0           | $10^{-2}$  | Citrate  | 289                                  | 99               | 18             | 95           |
| -0.5        | $10^{-2}$  | Citrate  | 602                                  | 201              | 26             | 188          |
| -1          | $10^{-2}$  | Citrate  | 723                                  | 194              | 37             | 166          |
| 0           | $10^{-2}$  | Chloride | 1095                                 | 449              | 144            | 392          |
| -0.5        | $10^{-2}$  | Chloride | 2491                                 | 564              | 190            | 391          |
| -1          | $10^{-2}$  | Chloride | 2315                                 | 295              | 209            | 365          |