

Isolation of the humin fraction from soil: preliminary comments

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Introduction and purpose of work

Humic substances play a crucial role in controlling soil properties.

Among humic substances, humin fraction has been the least studied, although it usually constitutes over half of their composition.

This is mainly due to the fact, that isolation of humin fraction is much more difficult, compared to humic and fulvic acid fractions.

Methods of humin fraction isolation can be divided into two main groups:

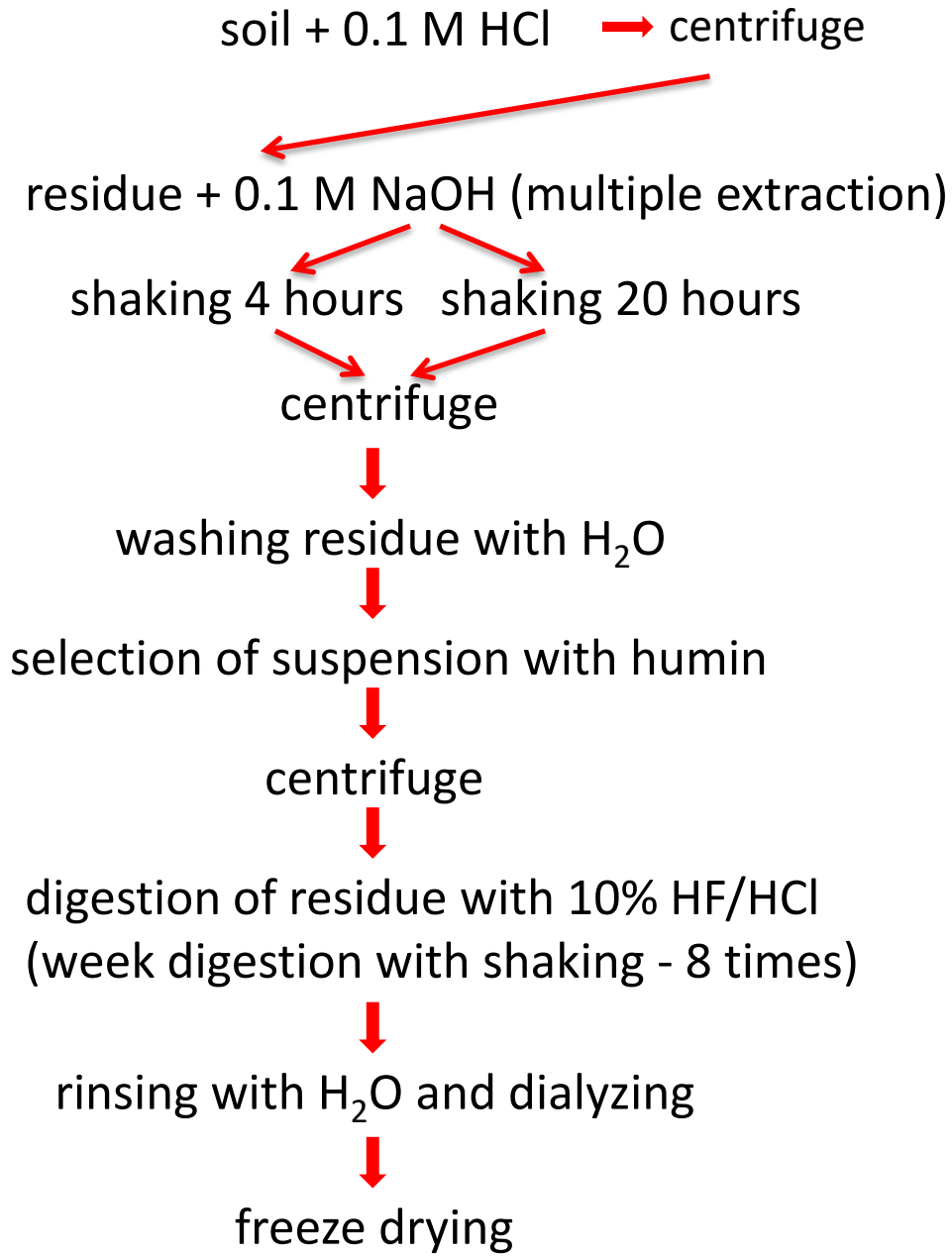
- extraction by different organic solvents,
- removal of humic and fulvic acids followed by digestion of mineral soil components.

We investigated some modifications of the latter method, in which humin fraction is not dissolved/precipitated.

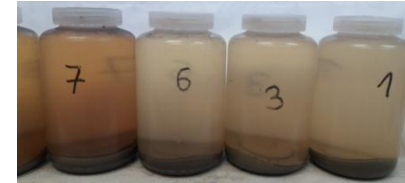
Humic and fulvic acids were removed (extracted) according to the method recommended by the International Humic Substances Society (IHSS).

Humin fraction was isolated from eight mollic horizons of Chernozems and Phaeozems, which differed in their physico-chemical properties.

Procedure



removal of supernatant with „light fulvic fraction”



removal of supernatant with humic and fulvic acids



removal of deposited sand



removal of mineral components



final preparation



Conclusions

During removal of humic and fulvic acids, the concentration of carbon in supernatant (corresponding to the content of removed humic and fulvic acid) considerably increase as shaking time is extended from 4 hours (recommended by IHSS method) to 20 hours.

Removal of sand fractions after extraction of humic and fulvic acids significantly reduces digestion time with HF/HCl.

Longer than 8 weeks digestion with 10% mixture of HF/HCl did not affect the reduction of the ash content of the humin fraction obtained.

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