Electronic Supplementary Material (ESI) for Analytical Methods.

Electronic Supplementary Information

Magnetic iron oxide nanoparticles for the collection and direct measurement of adsorbed alpha-emitting radionuclides from environmental waters by liquid scintillation analysis

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Table S1. MNP-based analyte collection and analysis method outline, presented as a supplement to Fig. S1.

	Step	Description	Footnote
Analyte concentration	A	Obtain sample aliquot	
	B	Analyte sorption onto MNPs	a
	C	Magnetic collection of analyte-bound MNPs	b
LS analysis: MNP suspension	D_1	Decant sample, leaving small volume behind	c
	E_1	Prepare MNP concentrate by resuspending MNPs in solution	d
	F_1	Aliquot MNP concentrate into LS cocktail; perform LS analysis	e
LS analysis: Dissolved MNPs	D_2	Decant sample	
	E_2	Dissolve MNPs in acid	f
	F_2	Aliquot dissolved MNP concentrate into LS cocktail; perform LS analysis	

a. MNPs added as a fully suspended concentrate in DI water
b. Placement location of magnet(s) for efficient MNP collection will depend on sample container dimensions
c. Alternatively, decant all sample volume and add known volume of water or dilute acid
d. Requires sonication and vigorous shaking to disrupt particle aggregation that formed during magnetic collection
e. Abide by MNP/cocktail suspension limits outlined in Section 4.1
f. Add a few drops strong HCl to dissolve MNPs; evaporate to incipient dryness; bring to known volume in water or dilute acid

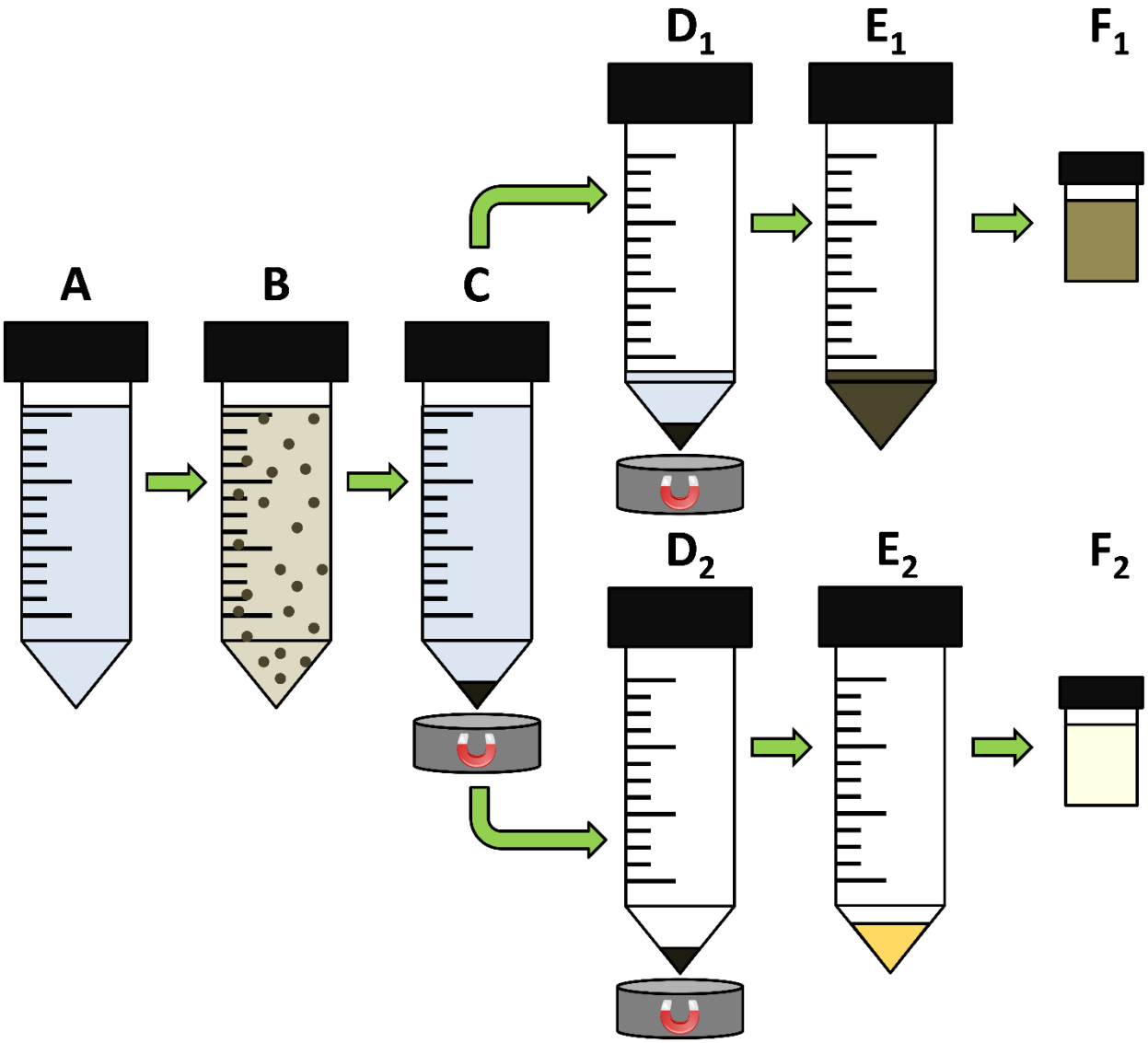

Fig. S1. MNP-based analyte collection and analysis method flow diagram. See Table S1 for description of steps.