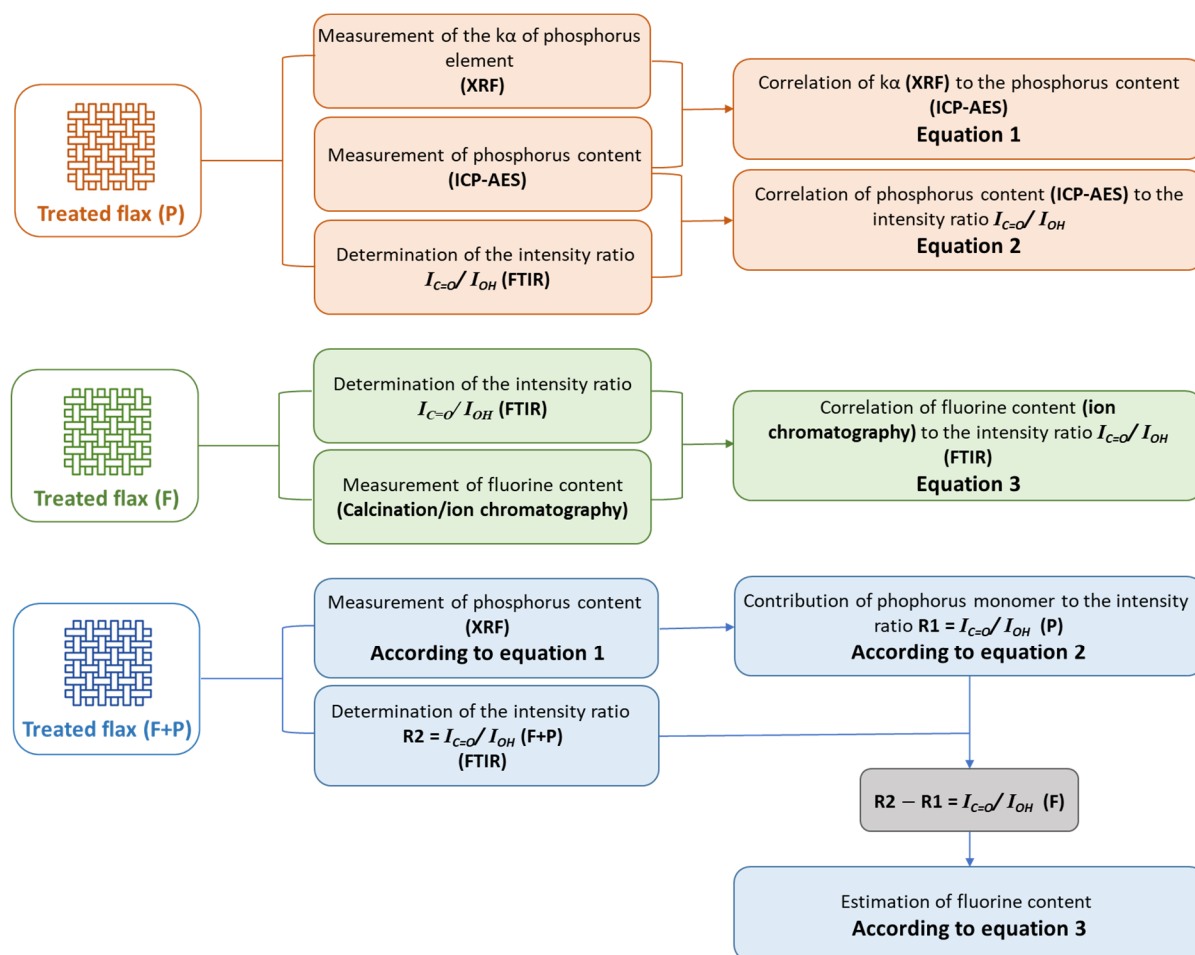


One-Step Multifunctionalization of Flax Fabrics for Simultaneous Flame-Retardant and Hydro-Oleophobic Properties Using Radiation-Induced Graft Polymerization

Table S1 : Molar masses, fluorine and phosphorus contents of the monomers used.

Monomer	Molar Mass (g.mol ⁻¹)	Fluorine content (wt%)	Phosphorus content (wt%)
M4	332.2	51.5	-
AC6	418.0	59.1	-
M8	532.2	60.7	-
MAPC1	208.0	-	14.9



Scheme S1 : Multi-step procedure for calculation of the phosphorus and fluorine contents of modified flax fabrics.

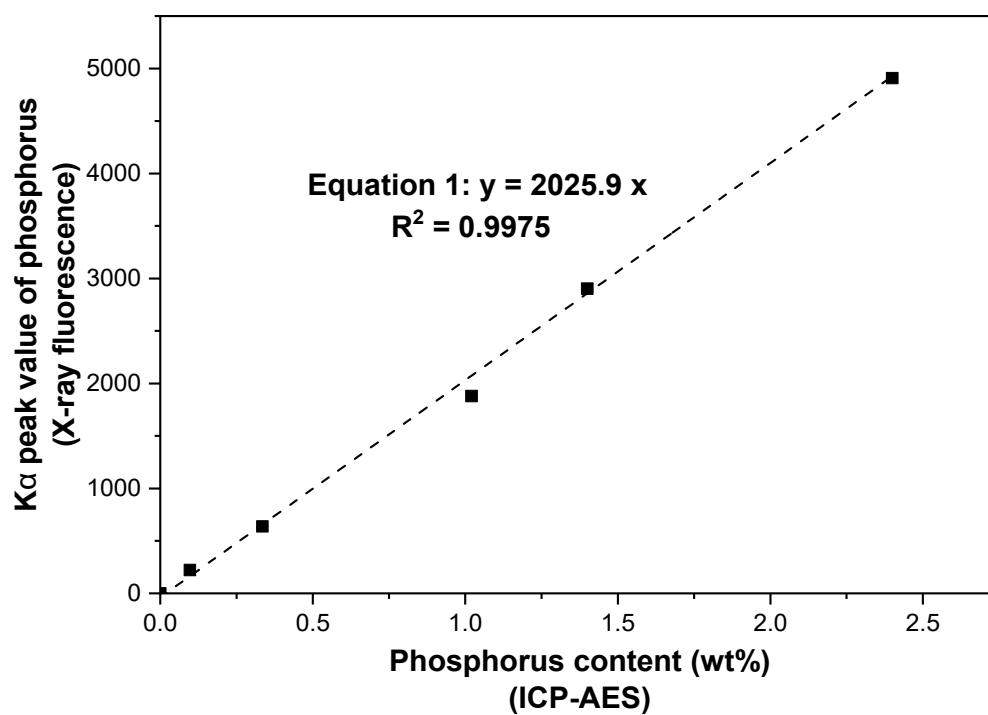


Figure S1 : Calibration curve of K α peak value of phosphorus measured by X-ray fluorescence versus the phosphorus content determined by ICP-AES.

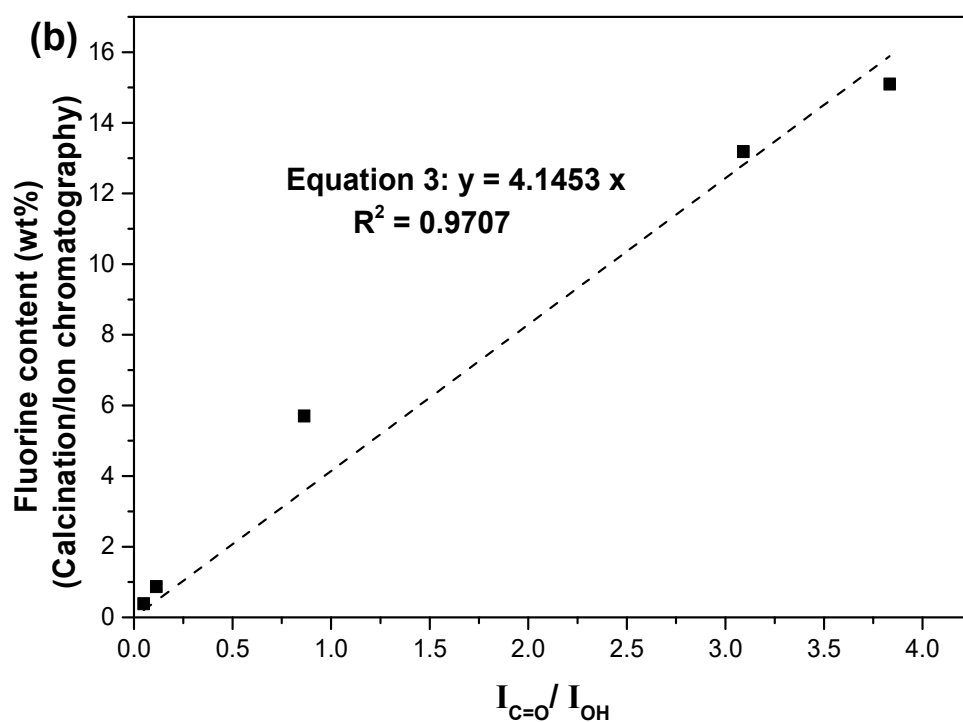
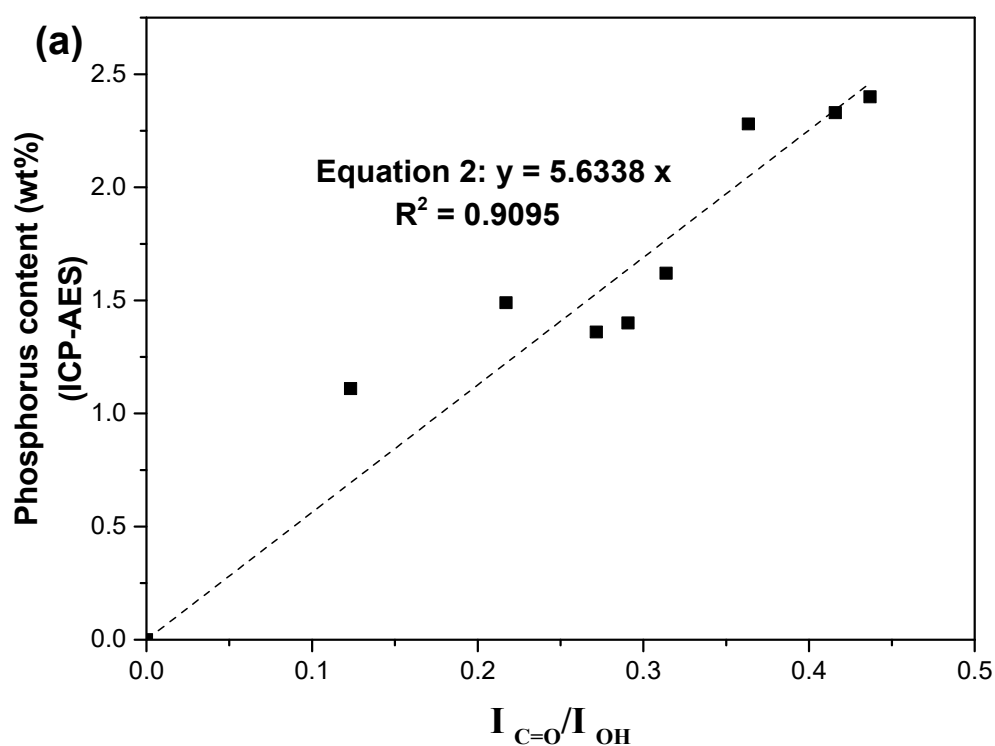
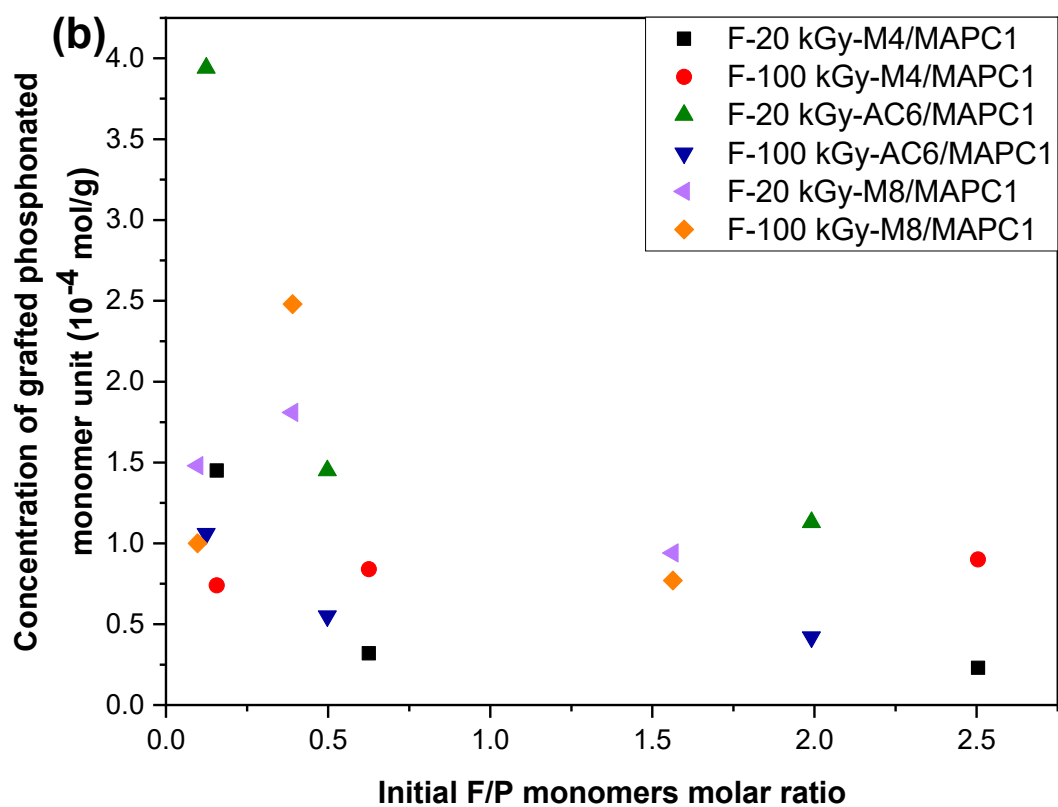
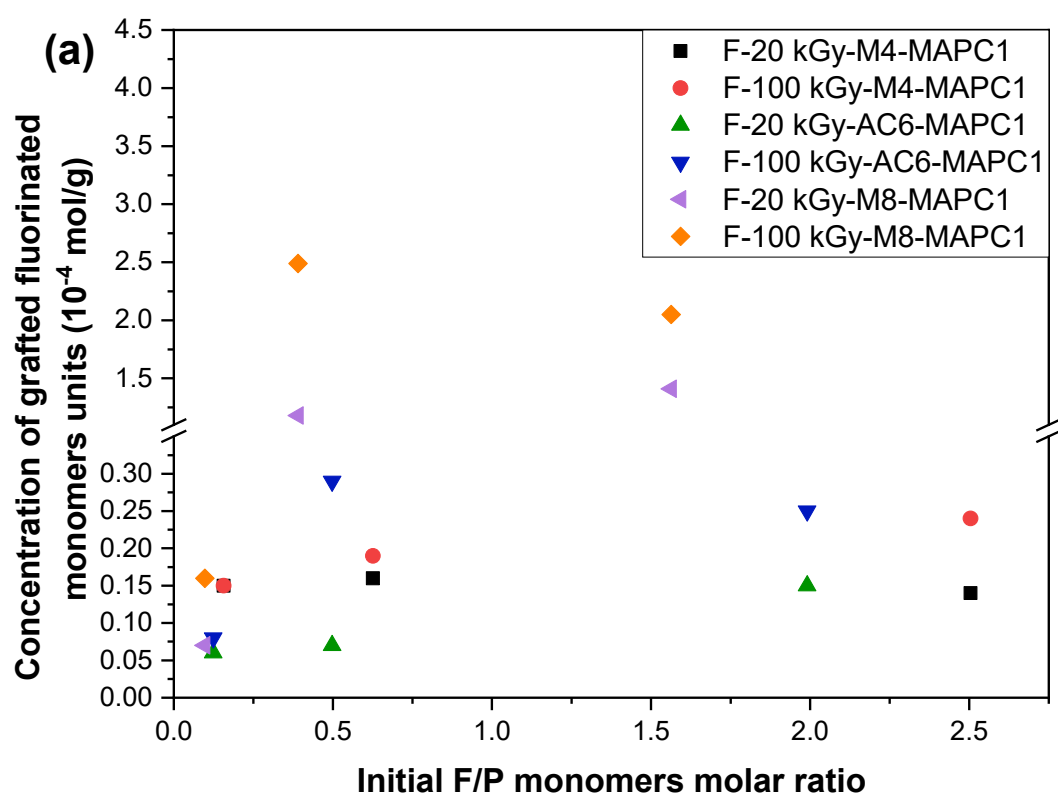


Figure S2 : Calibration curves of (a) phosphorus content determined by (ICP-AES) versus the intensity $I_{C=O}/I_{OH}$ ratio for samples treated only with MAPC1, (b) fluorine content measured by calcination followed by ion chromatography versus the intensity $I_{C=O}/I_{OH}$ ratio for samples treated only with M8.



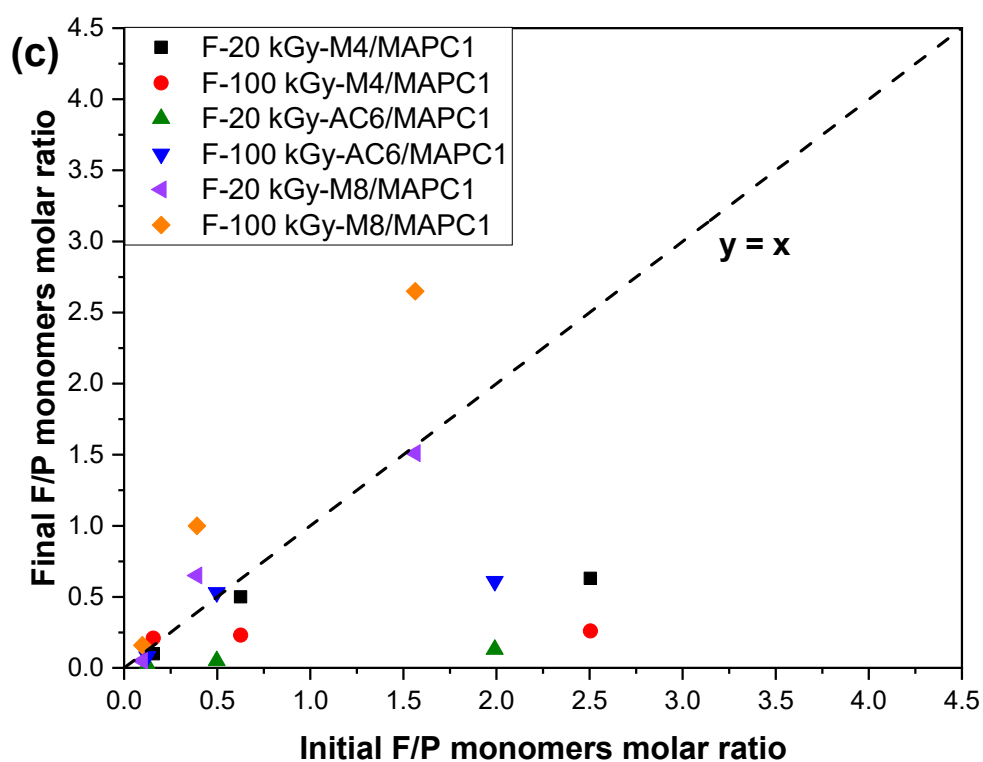


Figure S3 : Concentrations of grafted fluorinated (a) and phosphonated (b) monomers units and final F/P monomers molar ratio (c) versus the initial F/P monomer molar ratio.

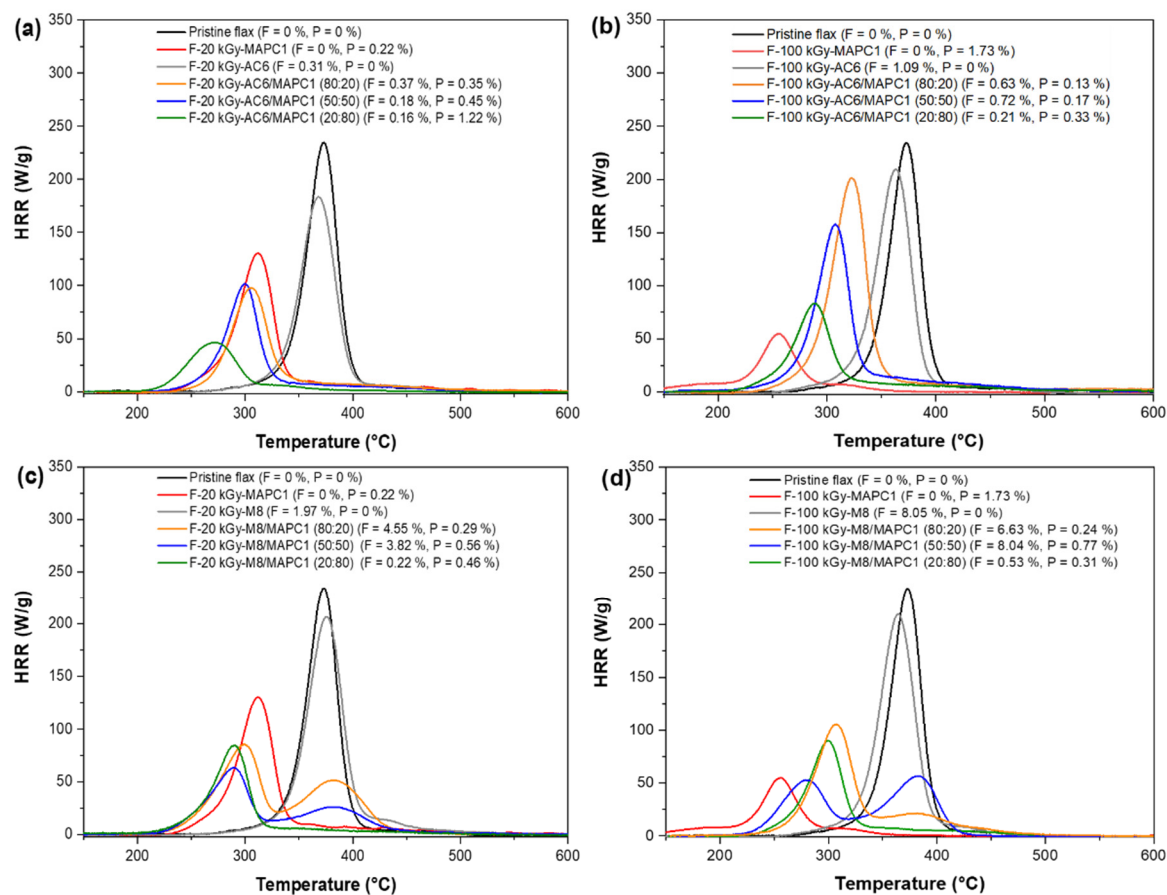


Figure S4 : HRR versus temperature curves in PCFC (anaerobic pyrolysis) of pre-irradiated flax fabrics at (a)(c) 20 kGy and at (b)(d) 100 kGy and treated with AC6/MAPC1 and M8/MAPC1 at various monomers ratio, respectively.

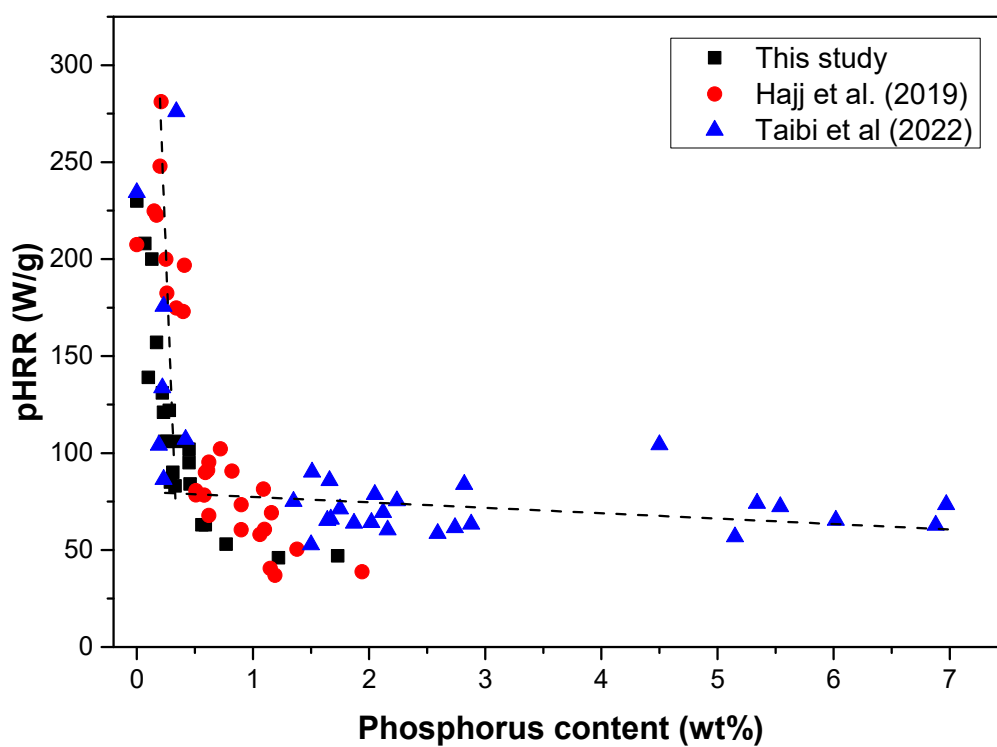


Figure S5 : PHRR versus phosphorus content in this study (combination of MAPC1 and fluorinated monomers) in comparison to previous works (only phosphonated monomers were grafted by pre-irradiation and simultaneous process) (dotted lines are guidelines for eyes).