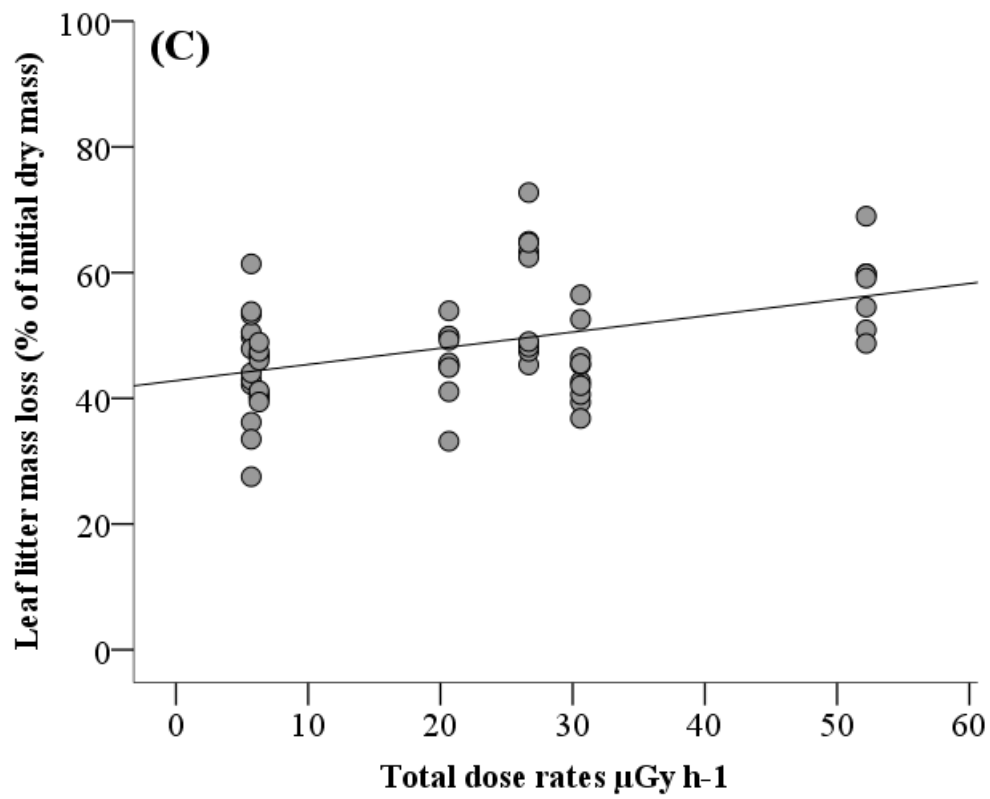


**Fig. 1.** Mass loss of leaf litter (percent of initial dry mass) from the two tree species birch (*Betula pendula*) and alder (*Alnus glutinosa*) as a function of the average total dose rates estimated for decomposers (ATDRs,  $\mu\text{Gy h}^{-1}$ ) at eleven different forest sites. (A) Mass loss after 162 days of exposure, and (B) after 321 days of exposure in the field. Lines represent simple linear regressions: alder:  $F_{1,29} = 9.689$ ,  $p = 0.004$ , mass loss =  $1.595 + 0.001 \times \text{ATDR}$ ,  $r^2 = 0.25$ ; birch:  $F_{1,25} = 12.019$ ,  $p = 0.002$ , mass loss =  $1.411 + 0.002 \times \text{ATDR}$ ,  $r^2 = 0.32$  (A); not significant (B)



**Fig. 2.** Mass loss of birch leaf litter (percent of initial dry mass after 318 days of exposure in the field) as a function of the average total dose rates estimated for decomposers (ATDRs,  $\mu\text{Gy h}^{-1}$ ) along a 1500 m transect located within a single forest stand. The black line represents a simple linear regression ( $F_{1,57}=12.554$ ,  $p = 0.001$ , mass loss =  $1.622 + 0.001 \times \text{ATDR}$ ,  $r^2 = 0.18$ ).



**Leaf litter decomposition experiment**











**Fig. 3.** The bottom of each microcosm was left open and two 5 x 15 cm windows covered with 1cm nylon mesh were opened on the side at the level of the soil surface, allowing free passage to soil and litter layer invertebrates but avoiding lateral loss of leaf litter. The top of



the microcosm was covered with a smaller mesh (0.05 cm), to avoid contamination with autochthonous litter dropping from the canopy. Microcosms were slightly inserted into the top soil, between 0.5 and 1 cm with a distance of about 2 m between individual microcosms. The natural litter removed for microcosm placement was then evenly distributed around the microcosms to provide a continuous litter layer (photos: Jean-Marc Bonzom/IRSN)







**Fig. 4.** The litter bags ( $15 \times 15$  cm) at site T were constructed from rigid plastic mesh of 1cm mesh width. They were placed flat on soil surface with a distance of about 2 m between individual litter bags after the natural litter was removed (photos: Jean-Marc Bonzom/IRSN)