AquaEco 40 (2006) Decomposition of Zizania latifolia AGB and BGB

Abstract

Decomposition of aboveground and belowground organs of the emergent macrophyte Z.latifolia

wasinvestigated using a litterbag technique for a period of 359 days in a freshwater marsh in Japan. Above-ground parts were classified into: leaves, sheaths and stems. Belowground parts were classified into: hor-izontal rhizomes (new rhizome, hard rhizome, soft rhizome) and vertical rhizome (stembase). The decayrate (k) was 0.0036 day)1, 0.0033 day)1and 0.0021 day)1for leaves, sheaths and stems, respectively. Forbelowground parts, the decay rate varied considerably from 0.0018 day)1to 0.0079 day)1, according todifferences in the initial chemical compositions of rhizomes. After 359 days of decay, new rhizomes lost94% of their original dry mass, compared with a loss of 48 –84% for the other rhizomes. There was asignificant positive relationshi p between litter quality and decay rate for horizontal rhizomes. For the newrhizomes, which had an internal nitrogen content of 24.2 mg N g)1dry mass, the mass loss was 40% higherthan that of soft rhizomes, which had an internal N content of 9.8 mg N g)1dry mass. Over the period of359 days, the nitrogen concentration in all rhizome types decreased to levels lower than initial values, butthe phosphorus concentration remained constant after an initial leaching loss. Most nitrogen and phos-phorus were lost during the first 45 days of decay. Changes in carbon to nitrogen (C:N) and carbon tophosphorus (C:P) ratios basically followed inversed trends of the nitrogen and phosphorus concentrations.