

Effects of Reclamation on Seasonal Dynamic of Carbon, Nitrogen and Phosphorus Stoichiometry in Suaeda salsa

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Abstract : In order to relieve the pressure on a land resource from a huge population, reclamation has occurred in many coastal wetlands. Plants can maintain their elemental composition within normal limits despite the variations of external conditions. Reclamation may affect carbon (C), nitrogen (N) and phosphorus (P) stoichiometry in the plant to some extent by altering physical and chemical properties of soil in a coastal wetland. We reported the seasonal dynamic of C, N and P stoichiometry in root, stem and leaf of Suaeda salsa (L.) Pall. and in soil between reclamation plots and natural plots. Our results of three-way ANOVA indicated that sampling season always had significant effect on C, N, P concentrations and their ratios; organ had no significant effect on N, P concentration and N:P; plot type had no significant effect on N concentration and C:N. Sampling season explained the most variability of tissue N and P contents, C:N, C:P and N:P, while it's organ for C using the restricted maximum likelihood (REML) method. By independent sample T-test, we found that reclamation affect more on C, N and P stoichiometry of stem than that of root or leaf on the whole. While there was no difference between reclamation plots and natural plots for soil in four seasons. For three organs, C concentration had peak values in autumn and minimum values in spring while N concentration had peak values in spring and minimum values in autumn. For P concentration, three organs all had peak values in spring; however, the root had minimum value in winter, the stem had that in autumn, and leaf had that in summer. The seasonal dynamic of C, N and P stoichiometry in a leaf of Suaeda salsa were much steadier than that in root or stem under the drive of reclamation.

Keywords : nitrogen, phosphorus, reclamation, seasonal dynamic, Suaeda salsa

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