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Effects of microbiotic crust nutrients on the different Vegetations

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Introduction In China , more and more people are concerning on prairie desertification . The microbiotic crust consisting of algae , lichen , moss , epiphyte , bacteria and soil particles is an important landscape component in these regions . This research examines effects of microbiotic crust nutrients on vegetation in the transition zone between the Loess Plateau and Mu US sandy land .

Material and methods This research had got the sample in the field and analyzed in the laboratory . The microbiotic crust was sampled in Ordos , Yijinhuoluo banner and this area lies in the transitional area of Loess Plateau and Mu US sandy land . Choose the *Salix psammophila* C .Wang forest , the *Artemisa ordosica* Krasch forest and the *Populus simonii* Carr . forest as 3 sampling area whose growth time were close and take the bare dune as compared area . In the sampling area , chose 2 dunes whose gradient and aspect are similar and sampled 3 repetitions in the middle and the bottom of the tailo . Experimental analysis the sample's nutrient content in the laboratory and the measuring index and its method are as follows : pH measured by pH which type is PHS-3D ; organic-potassium dichromate & concentrated sulfuric acid ; total N-micro Kjeldahl method ; total P-NaOH colorimetry ; total K-NaOH flame photometry . All of the experiment data were analyzed by Excel and SAS .

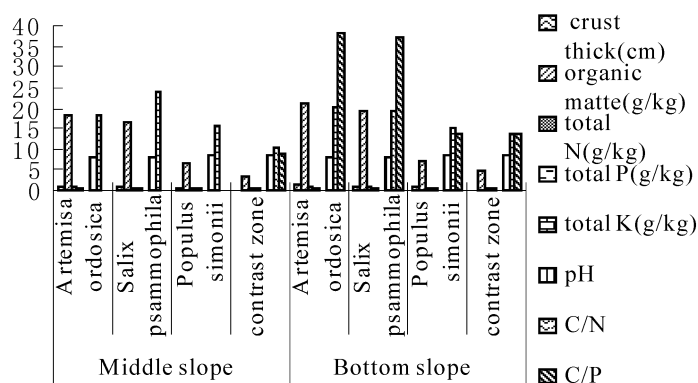


Figure 1 Nutrient content of the microbiotic crust in 3 sampling area and the contrast zone .

Results The minimum pH value in the bottom of *Artemisa ordosica* Krasch sampling dune is 7.95 and the maximum value is 8.46 of the middle of bare dune . The pH value of the crust under the *Artemisa ordosica* Krasch and the *Salix psammophila* C . Wang are higher than the *Populus simonii* Carr . forest and the bare dune . That's mainly because the moss has grown in the crust of the 2 former forests and their roots can secrete acidoid during the growth process . In the 3 sampling area , the organic content of the crust is 6.61-21.28 g/kg and the total N is 0.42-1.06 g/kg , both of them are higher than the compared area . It shows that the microbiotic crust has strong enrichment effect on the nutrient . Both the C/N and the C/P value in the sampling area are higher than the compared area , which shows that the inferior organism of the crust has higher suitability in sandy land with poor nutrient and their existence has important influence on the C circle in this desertified place .

Conclusions With the increase of crust thickness , the pH value tend to decrease and all the organic matter , total N , total P content are present raising trend . The microbiotic crust has significant enrichment effect of the nutrient . Both the C/N and the C/P in the 3 sampling area are higher than in the bare dune .

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