

northwest china development trend of future climate temperature forecasts, demonstrates the propagation of *Vetiveria zizanioides* cultivation and the introduction of northwest China and the feasibility of exploitation.

Key words: *Vetiveria zizanioides* ; introduce; northwest; possibility

03 A Brief Introduction of Study History and Application Process of Vetiver in China

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Abstract: A brief introduction of development of vetiver technology and natural distribution of vetiver in China was summarized. And the situation of study and application of vetiver in soil and water conservation, raising crop yield, environmental protection, economic use and many other aspects were introduced as well. Some suggestions were offered, in order to improve its ecological and economic benefits.

Key words: vetiver; study history; application process; prospect

04 Preliminary Study on *Vetiveria Zizanioides* Using As A Potential Lignocellulosic Energy Plant

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Abstract: The photosynthetic characteristics and main mineral elements content in leaf and height growth rate of *Vetiveria zizanioides* (L.) Nash cultivated in experimental field in Nanjing were determined, and contents of chemical components related to fiber property and of hydrolysis products in leaf of *V. zizanioides* cultivated in experimental field in Nanjing and beach in Dongtai were analyzed and compared. The results show that response curve of net photosynthetic rate (P_n) with photon flux density of leaf is a single peak curve with a max P_n of $15.3 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ and light saturation point of $1528.6 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$. And daily change curve of P_n is an obvious double peak curve with the two peaks appearing respectively at 10:00 and 15:00. The contents of K, N, Ca, P, Mg and S in leaf are 11.2, 7.6, 4.3, 2.7, 2.8 and $1.5 \text{mg}\cdot\text{g}^{-1}$, respectively. The rapid growth period of the species is from May to October and height growth rate in July is the highest with 42.1cm per month. Contents of cellulose, hemicellulose and lignin in leaf of *V. zizanioides* cultivated in experimental field and beach are 326.1 and $321.7 \text{mg}\cdot\text{g}^{-1}$, 380.2 and $369.5 \text{mg}\cdot\text{g}^{-1}$, 147.8 and $154.0 \text{mg}\cdot\text{g}^{-1}$, respectively, without significant difference between different locations ($P > 0.05$). While contents of benzene-ethanol extractives and ash are 59.5 and $54.1 \text{mg}\cdot\text{g}^{-1}$, 81.7 and $71.7 \text{mg}\cdot\text{g}^{-1}$, respectively, with significant difference between different locations ($P < 0.05$). Among hydrolysis products in leaf of *V. zizanioides* cultivated in experimental field and beach, contents of glucose and xylose all are higher with 368.3 and $359.9 \text{mg}\cdot\text{g}^{-1}$, 245.7 and $204.3 \text{mg}\cdot\text{g}^{-1}$, respectively, and contents of arabinose, galactose and mannose are lower with total contents of 58.6 and $55.8 \text{mg}\cdot\text{g}^{-1}$, respectively. In which, only xylose content has the significant difference between different locations ($P < 0.05$). It is concluded that *V. zizanioides* has a very high photosynthetic capacity, fast growth rate, relative high contents of cellulose and hemicellulose in leaf. And it can grow well in the marginal land and be considered as a potential lignocellulosic energy plant.

Key words: *Vetiveria zizanioides* (L.) Nash; lignocellulose; energy plant; photosynthetic characteristics; hydrolysis products; growth rate