



from linear relationship which showed the nonlinear elastic characteristics and sampling soil square breakdown from bulk soil finally. Compared with bare soil, the displacement of soil with vetiver was shorter under the same load, as showed the soil fixing capability of vetiver grass. Soil fixing capability of vetiver increased with root penetrating from 10 to 20 cm.

**Key words:** vetiver; soil fixing capability; in-situ measurement

## 4 Application of *Vetiveria Zizanioides* in Eco-hydrology Engineering

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**Abstract:** On the basis of the introduction of characteristics and properties of *vetiveria zizanioides* and according to the concept and application of eco-hydrology engineering currently, this paper puts forward a method of composite treatment and slope-fixing. The method combines the routine engineering measures with eco-plant *vetiveria zizanioides*, keeps the merits of routine engineering methods and absorbs the merits of eco-plant. This method provides a new way for the development of eco-hydrology.

**Key words:** *vetiveria zizanioides*; eco-hydrology engineering; hedge; dyke

## 5 Finite Element Analysis of Slope Reinforcement Impact Factors of Vetiver Plant Roots

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**Abstract:** With the vetiver as the research object, the article researched the effect mechanism of plant roots slope reinforcement and the impact factors of roots slope-reinforcement, and through using the Ansys finite element software for simulation, it analyzed the effect of plant roots slope-reinforcement under the function of various factors, and obtained the influence rules of relevant factors on roots slope-reinforcement effect.

**Key Words:** Vetiver; Plant roots; Slope reinforcement factors; Finite element analysis