How Can We Make Local Plants Grow Well in Severe Environment?

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In our hometown, there are often places where plants don’t grow well. Because of the lack of plants in those areas, soil erosion is easily caused by localized heavy rain and strong wind, which is a huge local problem. In this study, we proposed an appropriate land amendment method to improve plant growth in those areas. We investigated local areas, and found that farmland and river were contaminated with mining wastes. This points out the high necessity of managing mining wastes for plant growth. As a result of soil analysis, the main restriction factors of plant growth were coal refuses and tungsten tailings. Coal refuses inhibited plant growth due to their low pH. Little growth of plants observed in tungsten tailing because of their high pH, poor nutrient content, and low moisture content. To find the amendment method for promoting plant growth, two different mining wastes were mixed in different proportions (2:8, 5:5, and 8:2). Plant growth experiment using Miscanthus sinensis (silver grass, dominant plant in the study site) was conducted to compare growth rate in the different conditions. The stem length, community size, and biomass weight of silver grass were measured. The significantly better growth of silver grass was observed in the mixture of coal refuses and tungsten tailing rather than in each single mining waste. Through our research, it was found that plants can grow well in mixture of coal refuses and tungsten tailings even without covering soil. It is expected that the proposed method could be used as an appropriate field practice to improve plant growth in severe environment contaminated with mining wastes.

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