

Relationship between vegetation and distribution of marine clay layers in Ayumino, Izumi, Southwest Japan

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1. Introduction

The Osaka group is distributed on Izumi Hill located in the southern part of Osaka. The sulfide of about 1-2w/w% is included in the marine clay of the Osaka group (Itihara and Itihara, 1971). The clay layer oxidizes on the surface and forms mineralization potential (Ryoki, 2001). Ryoki and Kurita (2006) measured the spontaneous-potential distribution in Ayumino on Izumi Hill and discussed the relation to the distribution of the marine clay.

On the other hand, planting on the surface often withers because the surface soil becomes acidity by the sulfuric acid element caused as a result of weathering of the sulfide minerals (Ryoki *et al*, 2007). The situation of vegetation was investigated along a road on Ayumino, and chemical analysis of the surface soil was executed in this study.

2. Study area

The survey line lies along a road to partition into 1 and 3-chome, Ayumino. Azaleas are planted on both sides of the investigated road. Sampling points for chemical analysis lie on the southeast part among the survey line. Distances of sampling points adjoined each other are about 8m.

3. Method

The growing situation of planting was investigated along the survey line. It was classified into the following category; a: growing thickly (vigorously promoted), b: growing feebly (not withered, but the branch which is withering stood out or vitality of the tree weakly), c: withering (completely withered, only a dry trunk or a main branch remained), d: pavement.

A sampling rod was press-fit up to about 1m in depth and the surface soil was gathered. The sample was divided into 10cm in depth. The soil suspensions were made with each divided sample based on Yokoyama and Sato's (1987) methods using the extra-pure water. Particle composition of the soil suspension was separated using a centrifuge. The pH and the sulfate concentration of the supernatant liquid were measured. The pH was measured according to the glass electrode. The sulfate concentration was measured with the ion-chromatograph.

4. Result

Analyzing the chemical property of the surface soil, it has been understood that the pH of the soil suspension is low at the point of the wrong growing situation for planting. The sulfate concentration is large to some extent there, too. While, it is almost allowed to confirm that distribution of the marine clay lies under the area of the wrong growing situation for planting, if to compare the distribution of the vegetation grow and the geologic map (GSEA Kansai, 1998) in the measurement region.

5. Discussion

If distributions of the spontaneous potential measured by Ryoki and Kurita (2006) and of traverse and planting are compared, it is understood that growing is bad in the negative center of the electric potential distribution malfunction. Therefore, it can be judged that the state of growing and the spontaneous-potential anomaly of planting suggest the distribution of the marine clay covered in topsoil, *etc*.

6. Conclusion

In this study, the appearance of withering of vegetation is elucidated on the outcrop area of the marine clay layers. It is shown that both had the clear correspondence. And besides, it is pointed out that the distribution of vegetation withering is harmonized with the distribution of spontaneous-potential anomalies.

References

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