

Comparative Study on the Effect of Cockle Shell Powder on Laterite Soil and Clayey Soil

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Abstract: Soil stabilization is physical or chemical process which improves the engineering properties of the soil and increase the stability of the soil. Main objective of this investigation has been focused on index and engineering properties of laterite soil and clayey soil reinforced with locally available cockle shell powder (CSP). The admixture CSP is added at a proportion of 12 to 20 % with an increment of 2 %. Reinforced earth technique is considered as an effective ground improvement method because of its cost effective and easy availability. Cockle shell powder is the most popular reinforcement materials used in the study on the soil reinforcement for expansive soil. Both the laterite and clayey soil will gain great strength with the addition of cockle shell powder. This improvement is due to an interaction between soils and the cockle shell powder which contain calcium oxide and calcium carbonate similar to chemical composition to cement additives. The effect of admixture on dry density, moisture content, plasticity, shear strength and UCS values of the laterite soil and clayey soil are determined in the laboratory. We can say it is a little bit of effective in using sea shells powder as admixtures when compared with other stabilizing agents.

Keywords: CSP, clayey soil, laterite soil

REFERENCES

- [1]. M .M Nujid, Idrus, N A Azam, D A Tholibon, D Jamaluddin (2019) "Correlation between california bearing ratio (CBR) with plasticity index of marine stabilizes soil with cockle shell powder" Journal of Physics: Conference Series
- [2]. Masyitah Md Nujid, Juliana Idrus, Duratul Ain Tholibon, Nor Faizah Bawadi, Ali Akbar Firoozi (2020) "Bearing Capacity of Soft Marine Soil Stabilization with Cockel Shell Powder" International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 – 8958, Volume-9 Issue-3,
- [3]. C E L Jit, M Nujid, J Idrus, D A Tholibon and N F Bawadi "Effectiveness of different admixtures on Atterberg limit and compaction characteristics of stabilized soil" IOP Conf. Series: Earth and Environmental Science 920 (2021) 012025
- [4]. K. Mounika, B. Satya Narayana, D. Manohar, K. Sri Harsha Vardhan (2014) "Influence of sea shells powder on black cotton soil during stabilization" International Journal of Advances in Engineering & Technology .
- [5]. Ankit Patel, Prof. C.B.Mishra(2017) "Performance of Seashell Powder on Sub-grade Soil Stabilization" International Conference on Re-search and Innovations in Science, Engineering & Technology.
- [6]. Behrouz Gordan1 and Azlan Adnan (2015) "Strength Performance Based on Flexibility from Laterite Soil Using Tire Powder and Micro Silica" Hindawi Publishing Corporation Journal of Materials Volume 2015.
- [7]. Dhanya, P., Ramya, K., "Strength characteristics of Kuttanad soil treated with quarry dust", International Journal of Advanced Research Trends in Engineering and Technology, vol. 23(3), 2016.