

In addition, simulation using varying fiber content and straw length was done in **Fig.9 and Fig.10**. The compressive strength of CEB decreases as fiber content and straw length increases. The median value of cement content was set at 10%. In line with this, simulation showed that despite of the decrease in strength as fiber content and straw length increases, it can still achieve the minimum strength of 2.50MPa to make CEB as an alternative material according to PNS type 2 CHB.

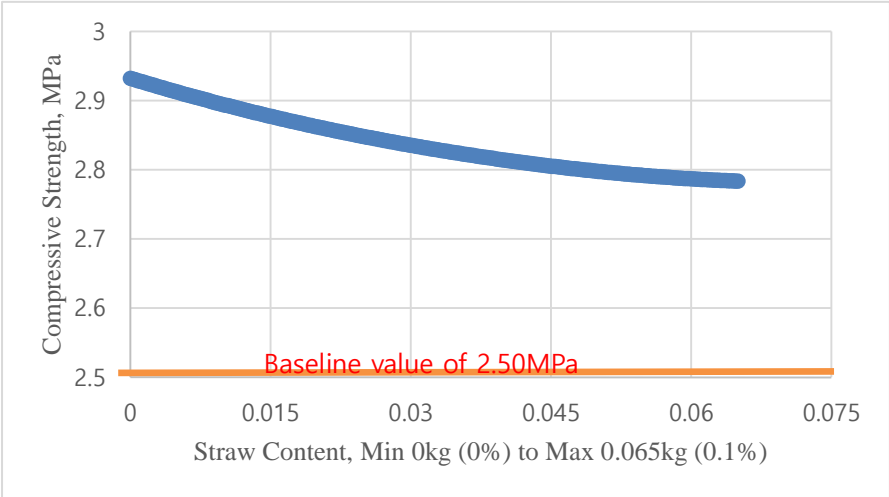


Fig.9. Simulation of ANN 5-11-1 with straw content and remaining four input parameters held at its median value

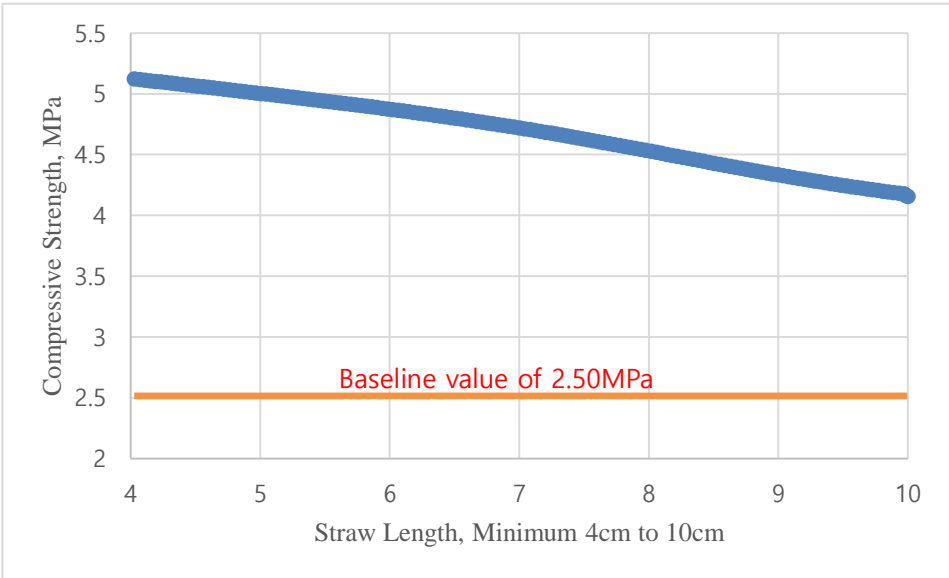


Fig.10. Simulation of ANN 5-11-1 with varying cement and remaining four input parameters held at its median value

3. CONCLUSIONS AND RECOMMENDATIONS

Optimizing the proportions of stabilizers in compressed earth blocks (CEB) is a very important process to explore it as an alternative material in construction. In this study, an optimum artificial neural network ANN 5-11-1 composed of five input parameters (soil, cement, straw, straw length and age), one hidden layer with 11 neurons and one output parameter (compressive strength) was generated and used to simulate the CEB with varying rice straw and cement content. The ANN network was trained using 250 samples from experiments. Based on simulations, the ANN model allowed us to investigate the influence and significant ingredients with the compressive strength. In addition, CEB can be used as an alternative construction material having 9.16% cement content and any addition of fiber content and length of fibers. Future studies on the positive effects of fibers against mechanical and environmental degradation can be made to maximize fiber content.

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