

## Investigation of Compressive Strength of Fly Ash-Based Geopolymer Bricks with Hierarchical Bayesian Path Analysis

**Authors :** Ersin Sener, Ibrahim Demir, Hasan Aykut Karaboga, Kadir Kilinc

**Abstract :** Bayesian methods, which have very wide range of applications, are implemented to the data obtained from the production of F class fly ash-based geopolymer bricks' experimental design. In this study, dependent variable is compressive strength, independent variables are treatment type (oven and steam), treatment time, molding time, temperature, water absorption ratio and density. The effect of independent variables on compressive strength is investigated. There is no difference among treatment types, but there is a correlation between independent variables. Therefore, hierarchical Bayesian path analysis is applied. In consequence of analysis we specified that treatment time, temperature and density effects on compressive strength is higher, molding time, and water absorption ratio is relatively low.

**Keywords :** experimental design, F class fly ash, geopolymer bricks, hierarchical Bayesian path analysis

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020