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Makgeolli structures and its application in BCKI-algebras

Soft set theory is a generalization of fuzzy set theory. Fuzzy set theory and soft set theory are good mathematical tools for dealing with uncertainty in a parametric manner. The aim of this article is to introduce the concept of makgeolli structures using fuzzy and soft set theory and to apply it to BCK/BCI-algebras. The notion of makgeolli algebra and makgeolli ideal in BCK/BCI-algebras is defined, and several properties are investigated. It deals with the relationship between makgeolli algebra and makgeolli ideal, and several examples are given. Characterization of makgeolli algebra and makgeolli ideal are discussed, and a new makgeolli algebra from old one is established. A condition for makgeolli algebra to be makgeolli ideal in BCK-soft universe is considered, and give example to show that makgeolli ideal is not makgeolli algebra in BCI-soft universe. Conditions for makgeolli ideal to be makgeolli algebra in BCI-soft universe are provided.