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## Fermentation of rain tree (*Samanea saman*) seed meal using mixed microbes to improve its nutritional quality

### ASNI ANWAR

Department of Fisheries, Faculty of Marine Science and Fisheries, Universitas Hasanuddin. Jl. Perintis Kemerdekaan Km.10, Makassar 90245, South Sulawesi, Indonesia

### ZAINUDDIN ♥

Department of Fisheries, Faculty of Marine Science and Fisheries, Universitas Hasanuddin. Jl. Perintis Kemerdekaan Km.10, Makassar 90245, South Sulawesi, Indonesia

### MUHAMMAD IQBAL DJAWAD

Department of Fisheries, Faculty of Marine Science and Fisheries, Universitas Hasanuddin. Jl. Perintis Kemerdekaan Km.10, Makassar 90245, South Sulawesi, Indonesia

### SITI ASLAMYAH

Department of Fisheries, Faculty of Marine Science and Fisheries, Universitas Hasanuddin. Jl. Perintis Kemerdekaan Km.10, Makassar 90245, South Sulawesi, Indonesia

## Abstract

**Abstract.** Anwar A, Zainuddin, Djawad MI, Aslamyah S. 2023. Fermentation of rain tree (*Samanea saman*) seed meal using mixed microbes to improve its nutritional quality. *Biodiversitas* 24: 5863-5872. Rain tree (*Samanea saman*) seed meal is a source of protein; however, its utilization remains limited due to the presence of anti-nutrients, such as tannins acting as protein inhibitors, high crude fiber content, dissolved protein, and low digestibility of dry and organic matter. Fermentation using mixed microbes potentially enhances the nutritional value of rain tree seed meal. This study aims to improve the nutritional quality and reduce anti-nutritional factors in rain tree seed flour using mixed microbes at various doses and incubation times in vitro. Microbes utilized in this study include *Bacillus* sp., *Saccharomyces cerevisiae*, and *Rhizopus* sp. The study was designed using a Factorial Completely Randomized Design, using two factors, i.e., 3 doses of mixed microbes (0, 1.5, 3, and 4.5 mL/100 g rain tree seed meal) and 3 different incubation times (42, 72 and 96 hours). There were significant interactions between the microbe doses and incubation times. The treatment of 4.5 mL of mixed microbes/100 g rain tree seed meal and a 72 hours incubation time reduced substantially crude fiber content (59.60%) and crude fat (73.20%), coupled with an increase in crude protein content (11.62%), NFE (6.52%), dry matter digestibility (DMD)

(36.78%), organic matter digestibility (OMD) (50.42%), and dissolved protein content (20.27%). Tannin content reduced significantly (37.72%) at the treatment of 4.5 mL of mixed microbes/100g rain tree seed meal with an incubation time of 96 hours. These findings suggest that rain tree seed meal, subjected to fermentation for 72 hours or more, improves nutritional quality, DMD, and OMD.