The prevalence of osteoporosis in Indonesia is high, especially among menopausal women. The Indonesian Osteoporosis Association predicts that by 2020 at least 35 percent of Indonesian menopausal women will experience osteoporosis.

Generally, high calcium milk or supplement is given to prevent osteoporosis. But this turned out to be insufficient.

“Our research proved that the current handling of menopausal women is ineffective. Nutrient surveys showed that 30-40 % of menopausal women that routinely consume high calcium milk still suffer from osteoporosis,” said Aulia Ayub, Dental student of UGM, on Thursday (22/6) on campus.

Aulia said this was because the available calcium milk in the market only contains calcium component while lacking others that have great roles in preventing osteoporosis such as estrogen.

This prompted Aulia and four fellow students from Dentistry and Pharmacy department, Arum
Trisnaningtyas S.P., Fun Nagede Adinsyah, Presty Dwi Fitriani, and Risma Martasuri, to get additional ingredients that are effective to prevent osteoporosis. They did the research for Student Creativity Programme UGM 2017 under the guidance of drg. Tetiana Haniastuti, M.Kes., Ph.D.

The students made use of the seeds of jackfruit (Artocarpus heterophyllus) as additional ingredients to high calcium milk. The seed contains isovlafon that has similar chemical structures as estrogen that enables binds with estrogen receptors. The bind can help inhibit the break down of bone matrix.

“Jackfruit seeds have the potential to be the solution to osteoporosis treatment in menopausal women as it can postpone the process of bone matrix break down,” said Aulia.

The seeds are processed into extract that is later combined with high calcium milk, made into fortification powder named as Binastic.

Arum added to prove the efficacy of jackfruit seed in suppressing osteoporosis incidence, they made in vivo tests in 25 Sprague Dawley rats. The extract is given orally to the rats that have been given ovariectomy treatment in advance so that the rats would experience deficiency of estrogen. After 28 days of treatment, surgery is done on the rat and the dental supporting bone is taken for analysis.

Observation on the counts of osteoblast, osteoclast, trabecular size, and collagen density proved that the rats with treatment of jackfruit seed extract fortification with high calcium milk give much more effective results in increasing bone density as compared to rats treated with high calcium milk only. X-rays results on the rats with jackfruit seed extract fortification with high calcium milk showed denser bone mass than the rats treated with high calcium milk only.

“This research became an initial step for the exploration into jackfruit seed as anti-osteoporosis agent which is prospective and safe. The research is expected to give effective and efficient solution to increasing bone mass density for menopausal women,” she expected.

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