

## INTISARI

**Latar Belakang:** Terapi hipotiroid kongenital belum terlaksana dengan maksimal karena keterbatasan program skrining. Hal ini mengakibatkan kejadian disabilitas intelektual karena hipotiroid kongenital tidak tertangani dengan baik. Diusulkan kedelai hitam yang mengandung antosianin dan isoflavon yang dapat menstimulasi perkembangan otak dan memori. Tujuan penelitian ini untuk mengetahui pengaruh pemberian susu kedelai hitam terhadap memori spasial tikus hipotiroid kongenital.

**Metode:** Eksperimental murni dengan rancangan *post test controlled group design*. Penelitian ini dilakukan di Laboratorium Fisiologi FKIK UMY. Subyek penelitian dengan 28 ekor tikus yang terdiri dari kelompok tikus normal, hipotiroid, normal diberi susu kedelai hitam dan hipotiroid diberi susu kedelai hitam. Hipotiroid kongenital dibuat dengan cara memberikan propiltiourasil 0,025% kepada induk bunting mulai hari 15 hingga postnatal hari ke 21. Pemberian susu kedelai hitam dosis 4,5 gram/200 gram tikus/hari selama 38 hari. Memori spasial diukur menggunakan *Morris Water Maze* pada hari ke 60 usia tikus. Analisis statistik menggunakan uji *Annova* dan *Kruskal-Wallis*.

**Hasil:** Rerata waktu retensi memori paling kecil ditemukan pada kelompok tikus hipotiroid yaitu  $17,37 \pm 6,09$  detik dan paling besar pada kelompok hipotiroid diberi susu kedelai hitam yaitu  $32,63 \pm 3,90$  detik. Kelompok normal dengan rerata waktu  $31,61 \pm 8,91$  detik dan kelompok normal susu kedelai hitam dengan rerata waktu  $30,66 \pm 8,97$  detik menunjukkan waktu yang lebih besar dibandingkan kelompok hipotiroid ( $p < 0,05$ ). Rerata waktu kelompok hipotiroid susu kedelai menyamai kelompok normal dan kelompok normal susu kedelai hitam ( $p > 0,05$ ).

**Kesimpulan:** Pemberian susu kedelai hitam meningkatkan memori spasial tikus hipotiroid kongenital.

**Kata kunci:** Hipotiroid kongenital, susu kedelai hitam, memori spasial.

## **ABSTRACT**

**Background:** *Congenital Hypothyroidism causes intellectual disability and brain development disorder in newborns. This happens because the fetus is experiencing a deficiency of the hormone during pregnancy. Congenital hypothyroidism therapy with levo-thyroxine can not be administered maximally to address the incidence of congenital hypothyroidism. It is proposed that black soybeans contain anthocyanins and isoflavones that can stimulate brain development and memory. The purpose of this study was to determine the effect of black soy milk on the spatial memory of congenital hypothyroid rat.*

**Methods:** *Pure experimental with post test controlled group design. This research was conducted in Laboratory of Physiology of the Faculty of Medicine, University of Muhammadiyah Yogyakarta. Subjects consisted of 28 rats consisting of a normal group, normal given the black soybean milk, hypothyroidism, and hypothyroidism were given black soy milk. Congenital hypothyroidism was made by providing 0,025% propylthiouracil to the pregnant mother from day 15<sup>th</sup> to postnatal day 21<sup>st</sup>. Black soy milk made with a dose of 4,5 grams of black soybean / 200 gram rat / day. Spatial memory was measured using the Morris Water Maze. Statistical analysis using the Annova and Kruskal-Wallis test.*

**Results:** *The shortest average of memory retention time was found in group of hypothyroid rat with average  $17,37 \pm 6,09$  and the longest found in group of hypothyroid rat fed black soy milk that is  $32,63 \pm 3,90$  ( $p < 0,05$ ). The group of normal rat with an average of  $31,61 \pm 8,91$  and the group of normal rat fed black soy milk with an average of  $30,66 \pm 8,97$  indicate a longert average time than hypothyroid rats group ( $p < 0,05$ ). The average time of hypothyroid rat group fed black soy milk was able to match the normal group and the group of normal rat fed black soy milk ( $p > 0,05$ ).*

**Conclusion:** *The andministration of black soy milk can enhance spatial memory in rats with congenital hypothyroidism.*

**Key words:** *Congenital hypothyroidism, black soy milk, spatial memory*