HIBRIDISASI INTRASPESIFIK IKAN WADER PARI *Rasbora lateristriata* (Bleeker, 1854): PERFORMA REPRODUKSI, PERTUMBUHAN HIBRIDA, DAN EKSPRESI GEN *bncr* TERKAIT FERTILITAS

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INTISARI

Masalah kemandirian pangan dan keterbatasan akses protein hewani di Indonesia mendorong pengembangan sektor perikanan, salah satunya adalah ikan wader pari. Produksi tahunan yang rendah dan adanya keragaman wader pari mendasari perlunya penerapan hibridisasi untuk meningkatkan performa populasi dan produktivitas budi daya. Hibridisasi intraspesifik dilakukan menggunakan strain wader pari Sleman, Bantul, dan Malang untuk memperoleh informasi mengenai performa reproduksi, pertumbuhan, serta ekspresi gen *bncr* terkait fertilitas. Parental diseleksi dan dipijahkan dengan rasio jantan dan betina 2:1. Karakter reproduksi yang ditentukan antara lain fekunditas, bobot dan diameter telur, *fertilization rate*, serta *hatching rate*. Larva dipelihara hingga usia 3 bulan, panjang dan bobot total diukur untuk menentukan karakter morfologis serta pertumbuhan. Nilai heterosis, *combining abilities*, efek resiprokal, dan efek maternal dihitung berdasarkan karakter pertumbuhan. Ekspresi relatif gen *bncr* ditentukan dengan metode RT-qPCR dan $2^{-\Delta\Delta Ct}$. Data dianalisis secara statistik menggunakan MANOVA, *one-way* ANOVA, ANOVA Welch, dan uji Tukey HSD ($p \leq 0{,}05$). Hibridisasi terbukti memengaruhi variasi karakter reproduksi wader pari dan performa reprodusi terbaik secara berurutan ditunjukkan oleh persilangan SS, SB, serta BM. Karakteristik dan pertambahan morfologis berbeda signifikan dengan pengaruh ukuran parental yang kuat pada awal pertumbuhan. Keturunan BB menghasilkan morfologis akhir paling tinggi. Hibrida SM menunjukkan tren pertumbuhan tertinggi dibandingkan keturunan murni parental hibrida resiproknya. Keturunan BB menunjukkan pertumbuhan paling optimal, diikuti oleh hibrida SM dan BM. Heterosis tertinggi dihasilkan oleh hibrida SM. Strain Bantul mengindikasikan GCA tertinggi sehingga menjadi parental paling prospektif untuk pertumbuhan, sedangkan kombinasi SM dan BM menghasilkan SCA lebih tinggi, arah persilangan yang menguntungkan, serta pengaruh efek maternal yang kuat dari strain Sleman. Tingkat ekspresi relatif gen *bncr* setara pada semua kelompok persilangan dan tidak berkorelasi dengan *fertilization rate* dari hibridisasi wader pari.

Kata kunci: *Fertilization rate*, pertumbuhan, heterosis, *combining abilities*, Bouncer.

INTRASPECIFIC HYBRIDIZATION IN YELLOW RASBORA *Rasbora lateristriata* (Bleeker, 1854): REPRODUCTIVE PERFORMANCE, HYBRID GROWTH, AND *bncr* GENE EXPRESSION RELATED TO FERTILITY

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ABSTRACT

The issues of food self-sufficiency and limited access of animal protein in Indonesia have driven the development of the fisheries sector, including yellow rasbora. Low annual production and diversity of yellow rasbora justify the implementation of hybridization to improve population performance and aquaculture productivity. Intraspecific hybridization was conducted using yellow rasbora strains from Sleman, Bantul and Malang to evaluate reproductive performance, hybrid growth, and *bncr* gene expression related to fertility. Parental were selected and spawned at a ratio of 2:1. Reproductive characters measured included fecundity, egg weight and diameter, fertilization rate, and hatching rate. Larvae were reared for three months, total length and weight were measured to assess morphological characters and growth. Growth characters were analyzed to estimate heterosis, combining abilities, reciprocal, and maternal effects. Relative expression of *bncr* gene was quantified by RT-qPCR and $2^{-\Delta\Delta Ct}$ methods. Data were statistically analyzed using MANOVA, one-way ANOVA, Welch's ANOVA, and Tukey's HSD test ($p \leq 0.05$). Hybridization influenced the variation in reproductive characters of yellow rasbora, with the best reproductive performance observed in SS, SB, and BM crosses, respectively. Morphological characteristics and increments differed significantly, with a strong influence of parental size at early growth stages. BB purebred exhibited the highest final morphological values. SM hybrid showed the highest growth trend among purebreds and reciprocal hybrid. BB purbred also demonstrated the most optimal growth, followed by SM and BM hybrids. The highest heterosis was found in SM hybrid. Bantul strain exhibited the highest GCA, indicating its strong potential as a parental line for growth improvement, whereas SM and BM combinations showed higher SCA, favorable cross, and strong maternal effect from Sleman strain. The relative *bncr* gene expression level were comparable among all crosses and showed no correlation with fertilization rate in yellow rasbora hybridization.

Keywords: Fertilization rate, growth, heterosis, combining abilities, Bouncer.