ABSTRACT

Balok beton bertulang merupakan elemen struktural penting dalam konstruksi bangunan yang berfungsi menyalurkan beban ke elemen pendukung utama, namun memiliki kelemahan dalam menahan gaya tarik sehingga diperlukan tulangan baja dan peningkatan mutu beton untuk mengoptimalkan kinerjanya. Metode yang digunakan dalam penelitian ini yaitu eksperimental, dimana pembebanan menggunakan dua titik dengan menggunakan sampel balok beton berukuran 75 mm × 125 mm × 1100 mm dengan variasi *superplasticizer* sebesar 0% 0,5% 1% dan 1,5% dari berat semen. Hasil penelitian menunjukkan bahwa variasi *superplasticizer* (0% 0,5%, 1% dan 1,5%) dapat menahan beban maksimum sebesar (30,29 kN, 34,47 kN, 44,27 kN dan 47,93 kN). Hal tersebut menunjukkan bahwa semakin tinggi kadar *superplasticizer*, semakin besar beban maksimum yang dapat ditahan balok sebelum mengalami keruntuhan. Peningkatan beban 58,2% ditunjukkan oleh belok dengan kadar *superplasticizer* (0%) dibandingkan dengan *superplasticizer* (1,5%). Penggunaan *superplasticizer* disarankan agar proses pengecoran dapat berlangsung lebih cepat dan efisien tanpa mengurangi mutu beton.

Kata Kunci*:* Balok Beton Bertulang Tunggal; Beban Maksimum; Kuat Lentur; *Superplasticizer*; Workability.

ABSTRACT

Reinforced concrete beams are important structural elements in building construction that function to transmit loads to the main supporting elements, but have weaknesses in resisting tensile forces so that steel reinforcement and increased concrete quality are needed to optimize their performance. The method used in this research is experimental, where the loading uses two points using concrete beam samples measuring 75 mm × 125 mm × 1100 mm with superplasticizer variations of 0% 0.5% 1% and 1.5% by weight of cement. The results showed that the superplasticizer variation (0% 0.5%, 1% and 1.5%) can withstand the maximum load of (30.29 kN, 34.47 kN, 44.27 kN and 47.93 kN). This shows that the higher the superplasticizer content, the greater the maximum load that the beam can withstand before collapsing. A 58.2% increase in load was shown by the beam with superplasticizer (0%) compared to superplasticizer (1.5%). The use of superplasticizer is recommended so that the casting process can take place more quickly and efficiently without reducing the quality of concrete.

***Keywords**: Single Reinforced Concrete Beam; Maximum Load; Flexural Strength; Superplasticizer; Workability.*