

ABSTRAK

PENGUKURAN NILAI ROTASI OPTIK SPESIFIK
LARUTAN GALAKTOSA, LAKTOSA DAN FRUKTOSA

Telah dilakukan pengukuran nilai rotasi optik spesifik larutan galaktosa, laktosa, dan fruktosa. Pengukuran acuan dan larutan sampel dilakukan secara bersamaan. Berkas laser HeNe dipecah menggunakan *beam splitter*. Analisator diputar oleh motor listrik. Data direkam secara kontinyu oleh komputer selama analisator diputar. Data dianalisa dengan menggunakan dua metode. Metode yang pertama dengan fitting data berdasar hukum Malus. Metode kedua dengan grafik intensitas cahaya pengukuran sampel terhadap intensitas cahaya acuan. Metode pertama, untuk konsentrasi 1 gr ml^{-1} dan panjang larutan 1 dm larutan galaktosa, laktosa, dan fruktosa secara berturut-turut memutar bidang getar cahaya terpolarisasi sebesar $(80 \pm 8)^\circ$, $(51 \pm 5)^\circ$, dan $(89 \pm 13)^\circ$. Metode kedua, untuk konsentrasi 1 gr ml^{-1} dan panjang larutan 1 dm larutan galaktosa, laktosa, dan fruktosa secara berturut-turut memutar bidang getar cahaya terpolarisasi sebesar $(80 \pm 5)^\circ$, $(52 \pm 6)^\circ$, dan $(86 \pm 9)^\circ$. Hasil menunjukkan bahwa besarnya perputaran bidang getar cahaya terpolarisasi tergantung jenis larutan.

Kata kunci: spesifik rotasi optik, galaktosa, laktosa, fruktosa, laser HeNe, *beam splitter*, hukum Malus, acuan, sampel

ABSTRACT

SPECIFIC OPTICAL ROTATION MEASUREMENT OF GALACTOSE,
LACTOSE AND FRUCTOSE SOLUTION

The specific optical rotation measurement of galactose, lactose, and fructose solution has been done. Measurement of reference and sample solution are performed simultaneously. HeNe laser was separated using a beam splitter. The analyzer was rotated by an electric motor. Data are recorded continuously by computer while analyzer rotating. The data are analyzed using two methods. The first method is the light intensity applied into Malus law. The second method is a graph of light intensity of sample measurement versus light intensity of reference. The first method, for concentration of 1 g ml^{-1} and length of 1 dm galactose, lactose, and fructose solution turned $(80 \pm 8)^\circ$, $(51 \pm 5)^\circ$, and $(89 \pm 13)^\circ$ respectively. The second method, for concentration of 1 g ml^{-1} and length of 1 dm galactose, lactose, and fructose solution turned $(80 \pm 5)^\circ$, $(52 \pm 6)^\circ$, and $(86 \pm 9)^\circ$ respectively. The results showed that the magnitude of the optical rotation depends on the type of solution.

Keyword: spesific optical rotation, galactose, lactose, maltose, HeNe laser, beam splitter, Malus law, reference, sample

