PERBANDINGAN NILAI AKURASI INDIKATOR TITRASI ASAM-BASA SINTETIS DENGAN INDIKATOR TIRASI ASAM-BASA ALAMI

ABSTRAK

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Telah dilakukan penelitian perbandingan akurasi antara indikator titrasi asam-basa sintetis dengan ekstrak buah naga merah yang mengandung pigmen betanin dan buah murbei yang mengandung pigmen antosianin sebagai indikator titrasi asam-basa alami melalui titrasi asam-basa. Verifikasi metode dari pembakuan natrium hidroksida oleh asam oksalat menghasilkan nilai % perolehan kembali 108% dan nilai koefisien variansi 0,876%, sedangkan dari pembakuan asam klorida oleh natrium karbonat menghasilkan nilai % perolehan kembali 135,42% dan nilai koefisien variansi 0,496%. Titrasi asam lemah (asam oksalat) oleh basa kuat (natrium hidroksida) menggunakan indikator sintetis fenolftalein yang dibandingkan dengan indikator alami menghasilkan perbandingan nilai % perolehan kembali yaitu fenolftalein 108%, ekstrak buah naga merah 102%, dan ekstrak buah murbei 104%. Titrasi basa lemah (natrium karbonat) oleh asam kuat (asam klorida) menggunakan indikator sintetis metil jingga yang dibandingkan dengan indikator alami menghasilkan perbandingan nilai % perolehan kembali yaitu metil jingga 70,833%, eksrak buah naga merah 172,916% dan ekstrak buah murbei 83,333%. Titrasi asam kuat (asam klorida) oleh basa kuat (natrium hidroksida) menggunakan indikator sintetis fenol merah menghasilkan perbandingan nilai % perolehan kembali yaitu fenol merah 133,333%, ekstrak buah naga merah 125% dan ekstrak buah murbei 129,166%.

Kata kunci: Perbandingan akurasi, Titrasi asam-basa**,** Indikator sintetis, Ekstrak buah naga merah, Ekstrak buah murbei, Indikator alami.

COMPARING THE ACCURACY VALUE BETWEEN SYNTHETIC INDICATORS AND NATURAL INDICATORS OF ACID-BASE TITRATION

ABSTRACT

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Has conducted research comparing the accuracy of acid-base titration indicators synthetic with red dragon fruit extracts containing pigment betanin and mulberry fruits containing anthocyanin pigments as indicators of acid-base titration naturally through acid-base titrations. Verification methods of standardization of sodium hydroxide by oxalic acid generating % recovery value of 108% and the coefficient of variance of 0,876%, while the standardization of hydrochloride acid by sodium carbonate generating % recovery value of 135,42% and the coefficient of variance of 0,496%. Titration of a weak acid (oxalic acid) by a strong base (sodium hydroxide) using synthetic indicator of phenolphthalein were compared to natural indicators generating a comparison of % recoveries value that are phenolphthalein as 108%, red dragon fruit extract as 102%, and mulberry extract as 104%. Titration of a weak base (sodium carbonate) by a strong acid (hydrochloride acid) using synthetic indicator of methyl orange were compared to the natural indicators generating a comparison of % recoveries value that are methyl orange as 70,833%, red dragon fruit extract as 172,916%, and mulberry extract as 83,333%. Titration of a strong acid (hydrochloride acid) by a strong base (sodium hydroxide) using synthetic indicator of phenol red were compared to the natural indicators generating a comparison of % recoveries value that are phenol red as 133,333%, red dragon fruit extract as 125%, and mulberry extract as 129,166%.

Keywords: Comparing the accuracy, Synthetic indicator, Acid-base titration, Red dragon fruit extract, Mulberry extract, Natural indicator.