

ABSTRAK

Natasha, Febiana. 2026. *Eksplorasi Perairan di Sekitar Ekosistem Mangrove sebagai Sumber Kontekstual Panduan Praktikum Kimia Hijau Berorientasi Keterampilan Proses Sains*. Skripsi. Tanjungpinang: Program Studi Pendidikan Kimia, Jurusan Pendidikan Matematika dan Ilmu Pengetahuan Alam, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Maritim Raja Ali Haji. Pembimbing I: Nina Adriani, B. Sc(Hons)., M. Sc., PhD. Pembimbing II: Inelda Yulita, S.Pd., M.Pd.

Kata Kunci: Perairan di Sekitar Ekosistem Mangrove, Pembelajaran Kontekstual, Panduan Praktikum, Kimia Hijau, Keterampilan Proses Sains

Pembelajaran kimia membutuhkan pendekatan kontekstual melalui pemanfaatan potensi lokal untuk melatih Keterampilan Proses Sains siswa dengan menerapkan prinsip Kimia Hijau. Penelitian ini bertujuan mengembangkan panduan praktikum Kimia Hijau berkonteks perairan di sekitar ekosistem mangrove berorientasi Keterampilan Proses Sains pada materi Asam Basa; dan materi Elektrolit dan Nonelektrolit. Penelitian pengembangan (R&D) ini didesain mengacu pada *Design and Development Research* (DDR) menggunakan metode pengembangan 4STMD. Tahapan penelitian meliputi analisis kebutuhan, *design* dan *development*, serta *evaluation*, dengan hanya melakukan uji kelayakan saja. Hasil penelitian adalah karakteristik fisikokimia perairan di sekitar ekosistem mangrove, seperti pH, konduktivitas listrik, TDS, dan salinitas dipengaruhi oleh kondisi cuaca, vegetasi mangrove, dan metode pengambilan. Uji Korelasi Spearman menunjukkan hubungan yang sangat kuat antara konduktivitas listrik, TDS, dan salinitas. Sementara itu, hubungan pH dengan parameter lainnya bervariasi tergantung jenis mangrove, kondisi cuaca dan metode pengambilan sampel. Karakteristik fisikokimia ini relevan dengan pembelajaran kimia, sehingga dapat diintegrasikan sebagai sumber kontekstual dalam 8 materi kimia. Melalui metode pengembangan 4STMD, panduan praktikum memiliki 7 karakteristik sesuai kriteria yang ditentukan. Selanjutnya, hasil studi evaluasi panduan praktikum yang dikembangkan dinyatakan sangat layak dengan persentase 99,59%. Oleh karenanya, panduan praktikum ini dapat menjadi alternatif bahan ajar kontekstual dan ramah lingkungan di sekolah.

ABSTRACT

Natasha, Febiana. 2026. *Exploration of Waters Around Mangrove Ecosystems as a Contextual Source for Green Chemistry Practicum Guides Oriented Towards Science Process Skills*. Thesis. Tanjungpinang: Chemistry Education Study Program, Department of Mathematics and Natural Sciences Education, Faculty of Teacher Training and Education, Raja Ali Haji Maritime University. Advisor I: Nina Adriani, B.Sc. (Hons), M.Sc., PhD. Advisor II: Inelda Yulita, S.Pd., M.Pd.

Keywords: *Waters around Mangrove Ecosystems, Contextual Learning, Green Chemistry, Practicum Guides, Science Process Skills*

Chemistry learning requires a contextual approach through the utilisation of local potential to train students' Science Process Skills by applying the principles of Green Chemistry. This study aims to develop a Green Chemistry practicum guide contextualised to the waters around mangrove ecosystems, oriented towards Science Process Skills in the subjects of Acids and Bases, and Electrolytes and Nonelectrolytes. The Research and Development (R&D) study was designed with reference to Design and Development Research (DDR) using the 4STMD development method. The research stages comprised needs analysis, design and development, and evaluation, with only a feasibility test being conducted. The results of the study show that the physicochemical characteristics of the waters around the mangrove ecosystem, including pH, electrical conductivity, TDS, and salinity, are influenced by weather conditions, mangrove vegetation, and sampling methods. Spearman's correlation test indicates a highly significant relationship between electrical conductivity, TDS, and salinity. Meanwhile, the relationship between pH and other parameters varies depending on mangrove species, weather conditions and sampling methods. These physicochemical characteristics are relevant to chemistry learning, and thus they can be integrated as a contextual source within 8 chemistry lessons. Through the 4STMD development method, the practical guide has 7 characteristics in line with the specified criteria. Moreover, the results of the evaluation study indicate that the developed practical guide is highly feasible, with a percentage of 99,59%. Consequently, this practical guide can be an alternative contextual and environmentally friendly teaching material in schools.