

INTISARI

Diagnosis kondisi transformator daya sangat penting untuk dilakukan sebab kondisi transformator daya akan menentukan kualitas penyaluran tenaga listrik dari sumber pembangkit kepada konsumen. *Dissolved Gas Analysis* (DGA) merupakan salah satu metode yang dapat digunakan untuk mengetahui gangguan mula transformator daya berdasarkan kandungan gas terlarut yang berada di dalam minyak transformator daya. Dalam penelitian ini data DGA yang berasal dari *dataset* TC 10 diolah sehingga menghasilkan atribut baru berupa perbandingan dan persentase gas yang kemudian dilakukan seleksi fitur menggunakan tiga macam algoritma seleksi atribut berbasis *machine learning* yaitu *OneR Attribute Evaluator*, *Correlation-based Feature Selection*, dan *Wrapper Subset Evaluator*.

Ketiga algoritma ini dipilih untuk menemukan fitur atau atribut paling signifikan untuk melakukan klasifikasi. Atribut terseleksi hasil seleksi fitur selanjutnya akan diuji kemampuan klasifikasi menggunakan lima macam metode klasifikasi yaitu *Naïve Bayes*, *Neural Network*, *RIPPER*, *Decision Tree*, dan *K-Nearest Neighbours*. Hasil performa klasifikasi atribut terseleksi berbasis *machine learning* juga akan dibandingkan dengan metode DGA konvensional segitiga duval dan revisi IEC 60599.

Hasil menunjukkan bahwa atribut terseleksi menggunakan algoritma *Machine Learning* memberikan performa klasifikasi lebih baik daripada ketika seluruh atribut digunakan dan dua algoritma seleksi atribut berbasis *machine learning* lain. Selain itu performa klasifikasi atribut terseleksi algoritma *OneR Attribute Evaluator* menggunakan metode klasifikasi *Naïve Bayes* unggul terhadap metode konvensional segitiga duval sebesar 89.6552 %.

Kata kunci : Transformator, DGA, Seleksi Fitur

ABSTRACT

Diagnosis condition of the power transformer is very important to do because it will determine the quality of electricity from the power plant to the consumer. Dissolved Gas Analysis (DGA) is one of method that can be used to determine the incipient fault of transformer based on solute gas content inside the power transformer oil. In this research, DGA data from TC 10 database processed so it can produce new attribute in the form of ratio and percentage of individual gas then performed with three kind of attribute selection algorithm based on machine learning using OneR Attribute Evaluator algorithm, Correlation-based Feature Selection, and Wrapper Subset Evaluator.

This three algorithm was chosen to find feature or attribute that most significant for classification. Selected attribute of selection will then be tested for classification capability using five different classification method : Naïve Bayes, Neural Network, RIPPER, Decision Tree, and K-Nearest Neighbours. The result of classification performance of the selected attribute based on machine learning also will be compare with conventional DGA method that is Duval Triangle and IEC 60599 revision

The result show that selected attribute by Machine Learning algorithm give classification performance better than when all the attribute used and than two others selection attribute algorithm based on machine learning. Selected attribute by OneR attribute evaluator also give better classification performance when used Naïve bayes classification method than conventional method Duval Triangle with accuracy 89.6552%.

Keywords : *Transformer, DGA, Feature Selection*