Bromoperoxidase was extracted from Thai red algae, *Polycarvernosa* sp. with grinding, agitation and fractionation by acetone. At the purification stage, DEAE-Toyopearl was used to be the anion-exchanger and Sephadex G-75 was used for gel filtration. The molecular weight of the enzyme was approximately 615,000 dalton. The enzyme was deactivated by dialysis against EDTA and reactivated specifically by vanadium. It was found that vanadium 0.6 mM was suitable for partial purified enzyme reactivation and it could activate the enzyme activity to 151%. Effect of temperature on stability was studied, partial purified enzyme was more stable than crude enzyme. The enzyme was stable at acidic pHs down to 4 and at alkaline pHs up to 9. The optimum pH and temperature of the enzyme were 6 and 55 °C, respectively. After maintaining at 4 °C for 40 days, crude enzyme activity was decreased 47.50% and the partial purified enzyme activity seemed not change. Crude enzyme activity and partial purified enzyme activities were decrease 34.48% and 30.63% respectively, when kept at –20°C for 40 days. This study shows that the enzyme might be non-heme enzyme consisting of vanadium as the prosthetic group and the vanadium activated enzyme might be used for further applications.