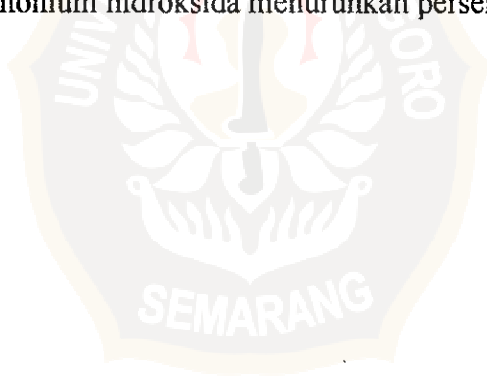


RINGKASAN

Zat warna indigo carmine yang digunakan sebagai pewarna jeans dalam industri tekstil menimbulkan limbah cair yang dapat mencemari lingkungan. Proses elektrokoagulasi dapat dimanfaatkan untuk kepentingan pengolahan limbah pewarna indigo carmine. Pada proses elektrokoagulasi, kompleks besi berperan dalam mengkopresipitasikan dan membawa serta indigo carmine mengendap. Penambahan konsentrasi amonium hidroksida dan jarak elektroda divariasikan untuk mengetahui pengaruhnya terhadap persen dekolorisasi pewarna indigo carmine.

Dekolorisasi pewarna indigo carmine dilakukan dengan elektrolisis menggunakan anoda besi dan katoda karbon, pada potensial 3 volt selama 20 menit. Konsentrasi amonium hidroksida yang ditambahkan divariasikan 0,5 M; 1 M; 1,5 M; 2 M serta jarak elektroda divariasikan 0,5 cm; 1 cm; 1,5 cm; 2 cm dan 2,5 cm. Hasil elektrolisis disaring dan ditentukan absorbansinya menggunakan spektrofotometer UV-Vis.

Hasil yang diperoleh menunjukkan bahwa persen dekolorisasi tertinggi sebesar 97,984 % pada penambahan konsentrasi amonium hidroksida 2 M dengan jarak elektroda 1 cm. Persen dekolorisasi terendah sebesar 68,75 % pada penambahan konsentrasi amonium hidroksida 1 M dengan jarak 2,5 cm. Tanpa adanya amonium hidroksida persen dekolorisasi pewarna indigo carmine mencapai 99,872 %. Persen dekolorisasi optimal diperoleh pada jarak elektroda 1 cm dan keberadaan amonium hidroksida menurunkan persen dekolorisasi pewarna indigo carmine.



SUMMARY

Indigo carmine used as jeans dyeing at textile industry affected liquid waste that polluted the environment. Electrocoagulation process can be applied to recycle the indigo carmine residues. In the electrocoagulation process iron complex has a role in the coprecipitation and carried the indigo carmine precipitate. The addition of ammonium hydroxide concentration and electrode distance were varied to determine the effect toward decolorization percentage of indigo carmine.

Decolorization of indigo carmine carried out by electrolysis using ferrum as anode, carbon as katode with external potential 3 volt for 20 minutes. Ammonium hydroxide concentration added was varied 0.5 M; 1 M; 1.5 M; 2. Electrode distance was varied by 0.5 cm; 1 cm; 1.5 cm; 2 cm dan 2.5 cm. The result of electrolysis was filtered and this absorbance was identified with UV-Vis spectrofotometer.

The result show that 1 M concentration ammonium hydroxide addition at 2,5 cm in electrode distance decrease decolorization percentage of indigo carmine until 68,750 %. Maksimum decolorization percentage of indigo carmine was 97,984 % that is observed at 0,5 M ammonium hydroxide concentration addition in 1 cm electrode distance. Absence of ammonium hydroxide decolorization percentage of indigo carmine was 99,722 %. Optimum decolorization percentage of indigo carmine was got at 1 cm electrode distance and presence ammonia decrease decolorization percentage of indigo carmine.

