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The effects of lead on total chlorophyll content, growth rate, multiplication rate, lead uptake and morphology on duckweed, *Lemna minor* were studied. *L. minor* was exposed to various concentrations of lead nitrate solutions (30, 50, 100 and 200 mg/L) for 12 days. Observations were done every three days. The results showed that the lower concentrations of lead (30-50 mg/L) did not have any effects on the total chlorophyll content, growth rate, multiplication rate and morphology of *L. minor*. However, the high concentrations of lead (100-200 mg/L) resulted in decreases of total chlorophyll content, growth rate, multiplication rate and morphology of *L. minor*. Morphological changes exhibited consisted of chlorosis, necrosis, breaking up of colonies and loss of buoyancy of plants. Lead uptake by *L. minor* was increased with the increase of lead nitrate concentration. The highest lead contents were observed on day 12 (30 mg/L) and day 6 (50, 100, 200 mg/L). The effects of lead and humic acid on total chlorophyll content, growth rate, multiplication rate, lead uptake and morphology of *L. minor* were also studied. The results showed that low concentrations of humic acid (10, 20, 40, 80 mg/L) did not have any effects on the toxicity of lead. Decreases in total chlorophyll content, growth rate, multiplication rate and changes in morphology of *L. minor* were still observed at the end of the period of exposure. However, the application of a high concentration of humic acid (160 mg/L) resulted in increases in total chlorophyll content, growth rate and multiplication rate of *L. minor* exposed to lead nitrate solution. The study on the effects of humic acid on lead uptake by *L. minor* showed that in the lead nitrate solution of 50, 100, 200 mg/L of lead without humic acid, the highest lead contents were found on day 6, then they decreased. Similar results were obtained from *L. minor* exposed to solutions of lead and humic acid at low concentrations (10, 20, 40, 80 mg/L). The application of a high concentration of humic acid (160 mg/L) resulted in a general decrease of lead contents in *L. minor* from day 3 to day 12.