As alternative to formalin, the antifungal effect of a plant product [Origanum onites L. (Lamiaceae) oil] was investigated for use in the artificial incubation of narrow-clawed crayfish (Astacus leptodactylus Eschscholtz) eggs. For this purpose, this study was conducted as two experiments. In experiment I, the eggs were artificially incubated for 40 days. In experiment II, juveniles were cultured to determine effects of O. onites oil on juveniles for 30 days. The experimental groups were as follows: formalin (3500 ppm for 15 min), O. onites oil (300 ppm for 15 min, 700 ppm for 2 min and 1000 ppm as a dip treatment 15 split-second) and a control (no treatment). In the experiment I, the highest hatching rate (86%) and survival rate of stage II juveniles (80%) were observed in 1000 ppm dip group. These results were similar to that of formalin group (85% and 79%) respectively. The control group exhibited the lowest hatching rate (49%) and stage II rate (42%) compared with the 1000 ppm dip group and 3500 ppm formalin treatments. However, other concentrations (300 and 700 ppm) of O. onites showed toxic effects on the eggs and there was no hatching. In the experiment II, the survival rate and growth performance of the crayfish juveniles were similar in all groups. This study indicated that the 1000 ppm O. onites dip treatment could be a good alternative to formalin for improved egg hatchability in the artificial incubation of crayfish eggs.