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Title: The expression of prophenoloxidase mRNA in red swamp crayfish, *Procambarus clarkii*, when it was challenged

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Abstract: The expression of the prophenoloxidase (proPO) gene was investigated in nine tissues of red swamp crayfish *Procambarus clarkii*, by real-time PCR after challenges by CpG oligodeoxynucleotide (ODN), *Aeromonas hydrophila* and white spot syndrome virus (WSSV). The results can be summarized as follows: (i) the expression level of the proPO gene in haemocytes was highest among nine studied tissues before the challenge; (ii) the expression of proPO increased in all studied tissues after stimulation by CpG ODN and WSSV, and also increased in all tissues, except the ovary, after the *A. hydrophila* challenge; (iii) the whole expression profiles were different, suggesting that different immune mechanisms may exist for crayfish that are resistant to WSSV and *A. hydrophila*, although the expression in haemocytes was similar before and after the WSSV and *A. hydrophila* challenges.

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