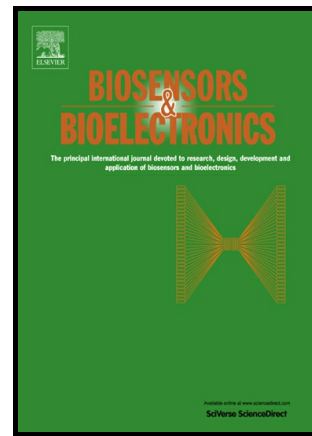


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**Extensible multiplex real-time PCR for rapid bacterial identification with carbon nanotube composite microparticles**

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**Abstract**

The early diagnosis of pathogenic bacteria is significant for bacterial identification and antibiotic resistance. Implementing rapid, sensitive, and specific detection, molecular diagnosis has been considered complementary to the conventional bacterial culture. Composite microparticles of a primer-immobilized network (cPIN) are developed for multiplex detection of pathogenic bacteria with real-time polymerase chain reaction (qPCR). A pair of specific primers are incorporated and stably conserved in a cPIN particle. One primer is crosslinked to the polymer network, and the other is bound to carbon nanotubes (CNTs) in the particle. At the initiation of qPCR, the latter primer is released from the CNTs

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