



## Antibacterial Effect of Carvacrol

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**ABSTRACT:** Bacteria like *Escherichia coli* and *Staphylococcus epidermidis* are a root of major global health issues as they cause several chronic infections like urinary tract infection, inflammatory bowel disease, colorectal cancer, sepsis and catheter infection. It is even more concerning since these bacteria show increased tolerance to disinfectant chemicals and antibiotics as well as resisting phagocytosis and various other components of the body's defense system, making it difficult to treat the various infections caused. Thus, alternative therapies like essential oils and its components are considered as an effective approach to limit the emergence and the spread of these organisms. They can be combined with antibiotics to reduce the chance for developing resistance, toxicity and lowering the effective dosage. This paper focuses on one such important component of essential oils - carvacrol. The combinatorial effects of carvacrol with antibiotics like rifampicin, gentamicin and ciprofloxacin are evaluated as a potential option in elimination of multi-drug resistant bacteria like *S. epidermidis* and *E. coli*. For *S. epidermidis*, we observed the MIC of carvacrol to be 61 µg/ml and that of the antibiotics i.e. ciprofloxacin, gentamicin and rifampicin, to be 12.5µg/ml, 25µg/ml and 50µg/ml respectively. Whereas for *E. coli*, we found the MIC of carvacrol to be 61 µg/ml and that of ciprofloxacin, gentamicin and rifampicin to be 6.25µg/ml, 25µg/ml and 12.5µg/ml respectively. In case of *S. epidermidis*, a synergistic effect was observed for carvacrol in combination with ciprofloxacin whereas an additive effect was observed in case of carvacrol in combination with rifampicin and gentamicin. In case of *E. coli*, an additive effect was observed for carvacrol in combination with all the three antibiotics. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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