ANTIMICROBIAL ACTIVITY OF CAJUN PRAIRIE HERBS ON THE GROWTH OF *Listeria monocytogenes*

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Abstract: The anti-microbial compounds in herbs are found mostly in the essential oil fraction. The consumption of ready-to-eat foods, particularly salads, is steadily rising. The bacteria *Listeria monocytogenes* contaminates a variety of foods, including uncooked vegetable products such as salad. This study investigates the effects of herbs' essential oil on the growth of *L. monocytogenes*, a bacterium typically found in salad bars causing the food borne disease called listeriosis. The objectives of this study were to determine the inhibitory effects of five herb's essential oil components using gas chromatographic methods, the Agar Diffusion Method and viable plate count using the herb's essential oil and powder. Five plant species provided essential oils extracted by steam distillation. Various concentrations of essential oil and powder were tested. The powdered forms of the herbs were tested at different levels (0, 0.5%, 1.0%, 1.5%, 5.0% and 10.0%) added aseptically to Brain Heart Infusion media with 1.5% agar. Different concentration levels of the essential oils (0, 250, 300, 350 and 400 μg) were tested on the growth of bacteria in BHI broth incubated for 30 hours at 37 C. When essential oils were applied to the surface of samples of salad that were inoculated with *L. monocytogenes*, the growth of the bacteria was observed to significantly decrease. The effectiveness of essential oils was observed using the agar diffusion method by demonstrating inhibition in the size of the zone of bacteria growth around the disc, and it is expressed as the diameter of this zone (in mm). The oils were then analyzed and compared using a gas chromatograph. *Monarda fistulosa* (Wild Bergamont) and *Nothoscordum bivalve* (Crowpoison) showed the highest inhibitory effects.