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Sensory and microbiological qualities of wheat-tomato seed flour bread

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The microbiological and sensory properties of wheat-tomato seed flour bread were investigated. Matured seed of tomato was dried at 60 oC in air oven and grounded to produce flour. The tomato flour was then blended with wheat flour in the ratios of (Wheat:Tomato seed) 100:0, 95:5 and 90:10. Straight dough method was used for the bread and the bread packaged in high density polythene film and stored on shelf for 7 days. The sensory and microbiological properties were monitored at 1, 3, 5 and 7 days of production. Loaf weight and volume decreased significantly with increased levels of tomato seed flours inclusion. The sensory results revealed that crumb color, texture and taste decreased significantly ($p<0.05$) with increased tomato flour at 1 day. There were no significant difference in acceptability between 100% wheat flour bread (100:0) and 5% (95:5) tomato flour inclusion at the 3rd day of production. However, 90:10 (Wheat:Tomato) bread was best acceptable at 7 day of storage with lowest microbial (total viable count) and mould counts. It was revealed that tomato seeds have antimicrobial properties and can be used as natural preservative in bread. Bread, tomato seed flour, sensory properties mould count.

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Antifungal activity of Thymus vulgaris essential oil: Disc diffusion versus vapor diffusion methods

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Thymus vulgaris (Lamiaceae family) is an aromatic herb used as a traditional therapy because of their pharmacological activities. However, to the best of our knowledge, no systematic studies comparing antifungal potential (in liquid and vapor phase) of the essential oil (EO) are available. The composition of *Thymus vulgaris* essential oil (TVEO) and its antifungal activity against yeast strains and filamentous fungi were investigated. The extraction of TVEO was obtained by steam distillation. Chemical composition of the EO from thyme grown in Algeria was determined by Gas Chromatography-Mass Spectrometry (GC-MS). A total of 13 compounds were identified. Carvacrol (83.8%) was the major component, followed by cymene (8.15%), terpinene (4.96%) and linalool (1.44%). Antifungal action of the TVEO against nine clinically isolated molds and eight yeast strains was determined by using standard agar disc diffusion and vapor diffusion methods at three different doses (20, 40 and 60 µl per disc). By disc diffusion method, TVEO showed potent antifungal activity against *Candida* strains more than antifungal drugs (Amphotericin B). The Diameter of Inhibition Zone (DIZ) varied from 34 to 60 mm for *Candida* yeasts. However, the results obtained by both agar diffusion and vapor diffusion methods were different. Significantly higher antifungal activity was observed in the vapor phase at lower concentrations. *Candida albicans, C. tropicalis* and *C. parapsilosis* were the most susceptible strains to the oil vapor with DIZ varied from 35 to 90 mm. Therefore, smaller doses of EO in the vapor phase can be inhibitory to pathogenic yeasts. Else, the DIZ increased with increase in concentration of the oil. There is growing evidence that TVEO in vapor phase are effective antifungal systems and appears worthy to be considered for practical uses in the prevention or treatment of candidiasis and fungal infections. The present study indicates that TVEO has considerable antifungal activity, deserving further investigation for clinical applications. Also whilst the mode of action remains mainly undetermined, this experimental approach will need to continue.

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