

**Research Article****Volatile Organic Compounds of *Bacillus licheniformis* and *Ochrobactrum tritici* as a Possible Mechanism of Action to Manage Pomegranate Fungal Fruit Rot Pathogen *Lasiodiplodia pseudotheobromae*****S Brindhadevi, M Muthamilan, S Rajamanicam and S Nakkeeran***Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore – 641 003.  
Email: brindadevi555@gmail.com***Abstract**

Symptoms of fruit rot were characterized with black necrotic spots of irregular in shape with yellow halo. The spots were surrounded with yellow halo. The lesions were restricted to the fruit skin. Based on the phenotypic and molecular characterization, the pathogen was confirmed as *Lasiodiplodia pseudotheobromae* bearing the accession number MG578440. The identified bacterial antagonistic species effective against *L. pseudotheobromae* were *Bacillus licheniformis* – strain PB1 (MH470474), *Bacillus altitudinus* – strain PB2 (MH470475), *Bacillus amyloliquefaciens* – strain PB3 (MH470473), *Ochrobactrum tritici* – strain PB8 (MH470478), *Bacillus sonarensis* – strain PB6 (MH470477) and *Bacillus aryabhatai* – strain PB7 (MH470480). Among the tested antagonists, the area of mycelial growth of the pathogen *L. pseudotheobromae* was the minimum with antagonistic bacteria *O. tritici* followed by *B. licheniformis*. The antimicrobial compounds associated with *B. licheniformis*, isolate (PB1) were identified as Acetyl chloride, 1H-Pyrrole-2-carboxylic acid, 2-Propenoic acid, 3-phenyl, Phenol, 2,4-bis (1,1-dimethylethyl), Phthalic acid, butyl hept-4-yl ester, 17-Pentatriacontene, Oleic acid, eicosyl ester, Phthalic acid, di(2-propylpentyl) ester. The compounds associated with *O. tritici* isolate (PB8) were identified as Phosgene, 1H-Pyrrole-2-carboxylic acid, Benzenepropanoic acid 1-methylethyl ester, 2-Propenoic acid, 3-phenyl, Phenol, 2,4-bis(1,1-dimethylethyl), 1,4-Benzenediol, 2,6-bis(1,1-dimethylethyl), 1-Octadecanol, Phthalic acid, 6-ethyl-3-octyl butyl ester, 12-Oxotetracyclo [5.3.1.1(2,6).0(3,5)]dodec-8-ene, 11-acetoxy-4,4,9-trichloro, 17-Pentatriacontene, Oleic acid, eicosyl ester. Thus these volatile organic compounds might have contributed for the suppression of fruit rot pathogen *L. pseudotheobromae*.

**Key words:** *Bacillus licheniformis*, fruit rot, pomegranate, *Lasiodiplodia pseudotheobromae* and *Ochrobactrum tritici*

**Citation:** Brindhadevi S, Muthamilan M, Rajamanicam S and Nakkeeran S. 2018. Volatile organic compounds of *Bacillus licheniformis* and *Ochrobactrum tritici* as a possible mechanism of action to manage fungal fruit rot of pomegranate incited by *Lasiodiplodia pseudotheobromae*. *J Mycol Pl Pathol* 48(4): 391–407.