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Title: Change of Lignin Content in Wild Soybeans Inoculated with Phytophthora sojae

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摘要: 对抗感不同的野生大豆接种疫霉菌后木质素含量的变化进行了研究,结果表明:在接种疫霉菌之前,抗感野生大豆的木质素含量平均值无明显差异;在接种疫霉菌之后,抗病野生大豆茎中木质素含量在病程的大部分时期高于对照,且在病程前期比感病野生大豆增幅大;在病程的大部分时期,抗感野生大豆叶中木质素的含量低于对照。

Abstract: The change of lignin content in wild soybeans inoculated with P.sojae was studied in this paper. The results showed that there was no significant difference between the resistant and susceptible wild soybeans in the content of the lignin before inoculated with P.sojae. The lignin content in stems of resistant wild soybeans increased compared with the control at most of the pathogenicity stages, and the increase rate was also higher than that of susceptible soybean varieties. The lignin content of resistant and susceptible wild soybeans decreased compared with the control at most of the pathogenicity stages in leaves.

参考文献/References:

- [1] 章元寿, 吴畏, 高必达, 等. 植物病理生理学 [M]. 南京: 江苏科学技术出版社, 1996: 215. (Zhang Y S, Wu W, Gao B D, et al. Plant pathophysiology [M]. Nanjing: Jiangsu Science and Technology Press, 1996: 215.)
- [2] 王媛, 杨红玉, 程在全. SA诱导拟南芥对灰霉病的抗性木质素含量的关系 [J]. 植物保护, 2007, 33 (4): 50-54. (Wang Y, Yang H Y, Cheng Z Q. Relationship between SA-induced resistance to grey mold in Arabidopsis and the lignin contents [J]. Plant Protection, 2007, 33 (4): 50-54.)
- [3] Chen C Y, Seguin Swartz G. Reaction of wild crucifers to leptosphaeria maculans, the causal agent of blackleg of crucifers [J]. Canadian Journal of Plant Pathology-revue Canadienne de Phytopathologie, 1999, 21(4): 361-367.
- [4] 杨家书, 李舜芳, 薛应龙, 等. 小麦品种对白粉病抗性与过氧化酶的关系 [J]. 植物病理学报, 1984, 4: 235-240. (Yang J S, Li S F, Xue Y L, et al. Varietal resistance of wheat to powdery mildew and its relation to peroxidases [J]. Acta Phytopathologica Sinica, 1984, 4: 235-240.)
- [5] 骆桂芬, 崔俊涛, 张莉, 等. 黄瓜叶片中糖和木质素的含量与霜霉病诱导抗性的关系 [J]. 植物病理学报, 1997, 35(1): 65-69. (Luo G F, Cui J T, Zhang L, et al. Relationship between sugar, lignin content and resistance to downy mildew of cucumber [J]. Acta Phytopathologica Sinica, 1997, 35(1): 65-69.)
- [6] Schmitthenner A F. Problems and progress in control of phytophthora root rot of soybean [J]. Plant Disease, 1985, 69 (4): 362-368.
- [7] 张淑珍, 丁广文, 李文斌, 等. 大豆疫霉根腐病研究进展 [J]. 中国油料作物学报, 2004, 26 (6): 102-107. (Zhang S Z, Ding G W, Li W B, et al. Progress of research on Phytophthora sojae [J]. Chinese Journal of Oil Crop Sciences, 2004, 26 (6): 102-107.)
- [8] 张淑珍. 大豆疫霉才腐病菌毒素及其诱导抗性机制的研究 [D]. 哈尔滨: 东北农业大学, 2002. (Zhang S Z. Study on pathotoxin produced by phytophthora sojae and induced resistant mechanism of soybean treated by it [D]. Harbin: Northeast Agricultural University, 2002.)

- [9] 孙石. 大豆疫霉根腐病抗性的遗传分析及基因定位的初步研究 [D]. 南京: 南京农业大学, 2008. (Sun S. Primary study on genetic analysis and gene mapping of resistance to *P. sojae* in soybean [D]. Nanjing: Nanjing Agricultural University, 2008.)
- [10] 葛秀秀. 大豆抗疫霉根腐病机制的初步研究 [D]. 哈尔滨: 东北农业大学, 2001. (Ge X X. Study on resistance mechanism of soybeans infected by *Phytophthora sojae* [D]. Harbin: Northeast Agricultural University, 2001.)
- [11] 曲娟娟. 大豆疫霉根腐病抗病基因的RAPD标记研究 [D]. 哈尔滨: 东北农业大学, 2001. (Qu J J. Study on the function of RAPD gene related to *Phytophthora sojae*- resistance in soybean [D]. Harbin: Northeast Agricultural University, 2001.)
- [12] 姜树宝. β -1, 3-葡聚糖酶活性与大豆抗疫霉根腐病的关系 [D]. 大庆: 黑龙江八一农垦大学, 2008. (Lou S B. The relationship between activities of β -1, 3-glucanase and resistance to *Phytophthora* root rot of soybean [D]. Daqing: Heilongjiang Bayi Agricultural University, 2008.)
- [13] Dorrance A E, McClure S A, Martin S K. Effect of partial resistance on *Phytophthora* stem rot incidence and yield of soybean in Ohio [J]. *Plant Disease*, 2003, 87: 308-312.
- [14] Grau C R, Dorrance A E, Bond J, et al. Fungal diseases [M] // Boerma H R, Specht. Soybeans: Improvement, production, and uses. 3rd ed. Agron. Monogr., no. 16. ASA, CSSA, and SSSA, Madison, WI, 2004: 679-763.
- [15] 齐宁, 林红, 魏淑红, 等. 利用野生大豆资源创新优质抗病大豆新种质 [J]. 植物遗传资源学报, 2005, 6(2): 200-203. (Qi N, Lin H, Wei S H, et al. Using wild soybean resources to develop the new soybean germplasm of high quality and diseases resistance [J]. *Journal of Plant Genetic Resources*, 2005, 6(2): 200-203.)
- [16] Yang X B, Meng X Q, Ruffr1, et al. Races of *Phytophthora sojae* in Iowa soybean fields [J]. *Plant Disease*, 1996, 80: 1418-1420.
- [17] 左豫虎, 臧忠婧, 刘锡若. 影响大豆疫霉菌游动孢子产生的条件 [J]. 植物病理学报, 2001, 31(3): 241-245. (Zuo Y H, Zang Z J, Liu X R. Studies on production condition of zoospores of *Phytophthora sojae* [J]. *Acta Phytopathologica Sinica*, 2001, 31 (3): 241-245.)
- [18] 张淑珍, 徐鹏飞, 鹿文成, 等. 野生大豆接种大豆疫霉根腐病菌后超氧化物歧化酶活性变化 [J]. 作物杂志, 2011(5): 31-35. (Zhang S Z, Xu P F, Lu W C, et al. Response of SOD activity in *Glycine soja* inoculated by *Phytophthora sojae* [J]. *Crops*, 2011(5): 31-35.)
- [19] 波钦诺克. 植物生物化学分析方法 [M]. 北京: 科学出版社, 1981: 178-181. (Peqin Knox. *Plant biochemistry analysis* [M]. Beijing: Science Press, 1981: 178-181.)
- [20] 于明草, 杨洪强, 翟衡. 植物木质素及其生物学功能 [J]. 山东农业大学学报, 2003, 34 (1): 124-128. (Yu M G, Yang H Q, Qu H. Lignin and physiological function in plant [J]. *Journal of Shandong Agricultural University*, 2003, 34 (1): 124-128.)
- [21] 张宪政, 谭桂茹, 黄元极, 等. 植物生理学实验技术 [M]. 沈阳: 辽宁科学技术出版社, 1989: 99-100. (Zhang X Z, Tan G R, Huang Y J, et al. *Plant physiology experimental techniques* [M]. Shenyang: Liaoning Science and Technology Press, 1989: 99-100.)
- [22] 许勇, 王永建, 葛秀春, 等. 枯萎病菌诱导的结构抗性和相关酶活性的变化与西瓜枯萎病抗性的关系 [J]. 果树科学, 2000, 17(2): 123-127. (Xu Y, Wang Y J, Ge C X, et al. The Relation between the induced constriction resistance and changes in activities of related enzymes in watermelon seedlings after infection by *Fusarium oxysporum* f.sp. *niveum* [J]. *Journal of Fruit Science*, 2000, 17(2): 123-127.)
- [23] 毛爱军, 王永建, 冯兰香, 等. 水杨酸诱导辣椒抗病生化机制的研究 [J]. 中国农学通报, 2005, 21(5): 219-222. (Mao A J, Wang Y J, Feng L C, et al. Study on the relative biochemical mechanism induced by salicylic acid against *Phytophthora capsici* in pepper [J]. *Chinese Agricultural Science Bulletin*, 2005, 21(5): 219-222.)
- [24] 王海华, 谭新中, 彭喜旭, 等. 外源体 H_2O_2 和木质素积累在镍诱导的水稻对白叶枯病系统抗性中的作用 [J]. 中国农业科学, 2010, 43(5): 949-956. (Wang H H, Tan X Z, Peng X X. The role of apoplastic hydrogen peroxide and lignin accumulation in the systemic resistance of rice to bacterial blight induced by nickel [J]. *Scientia Agricultural Sinica*, 2010, 43 (5): 949-956.)
- [25] 张淑珍, 靳立梅, 徐鹏飞, 等. 野生大豆接种大豆疫霉根腐病菌后苯丙氨酸解氨酶 (PAL) 活性的变化 [J]. 大豆科学, 2009, 12(6): 1044-1048. (Zhang S Z, Jin L M, Xu P F, et al. Response of PAL activity to *Phytophthora sojae* inoculation in *Glycine soja* [J]. *Soybean Science*, 2009, 12 (6): 1044-1048.)
- [26] Enkerli K. Ultrastructure of compatible and incompatible interactions of soybean roots infected with the plant pathogenic oomycetes *Phytophthora sojae* [J]. *Canadian Journal of Botany*, 1997, 75 (9): 1493-1508.
- [27] 靳立梅. 野生大豆对大豆疫霉根腐病抗性机理的初步研究 [D]. 哈尔滨: 东北农业大学, 2008. (Jin L M. Preliminary study on resistance mechanism of wild soybeans infected by *Phytophthora sojae* [D]. Harbin: Northeast Agricultural University, 2008.)
- [28] 张淑珍, 吴俊江, 徐鹏飞, 等. 大豆疫霉根腐病菌游动孢子侵染野生大豆下胚轴的透射电镜观察 [J]. 大豆科学, 2012, 6(31): 462-465. (Zhang S Z, Wu J J, Xu P F, et al. Ultrastructure of hypocotyls of *Glycine soja* infected with zoospores of *Phytophthora sojae* [J]. *Soybean Science*, 2012, 6 (31): 462-465.)

相似文献/References:

- [1] 高越, 刘辉, 陶波. 抗草甘膦野生大豆筛选及其抗性生理机制研究 [J]. (article.aspx?type=view&id=201301018) 大豆科学, 2013, 32(01): 76. [doi:10.3969/j.issn.1000-9841.2013.01.018]
- GAO Yue, LIU Hui, TAO Bo. Screening and Physiological Mechanisms of Resistance to Glyphosate in Wild Soybeans (*Glycine soja*) [J]. *Soybean Science*, 2013, 32(01): 76. [doi:10.3969/j.issn.1000-9841.2013.01.018]
- [2] 王军卫, 侯立江, 李? 登, 等. 野生大豆紫色酸性磷酸酶PAP1基因的克隆及分析 [J]. (article.aspx?type=view&id=201305004) 大豆科学, 2013, 32(05): 596. [doi:10.11861/j.issn.1000-9841.2013.05.0596]
- WANG Jun-wei, HOU Li-jiang, LI Deng, et al. Cloning and Sequence Analysis of Purple Acid Phosphatase PAP1 Gene in Wild Soybean [J]. *Soybean Science*, 2013, 32(01): 596. [doi:10.11861/j.issn.1000-9841.2013.05.0596]
- [3] 王军卫, 侯立江, 李? 登, 等. 野生大豆紫色酸性磷酸酶PAP1基因的克隆及分析 [J]. (article.aspx?type=view&id=201305004) 大豆科学, 2013, 32(05): 596.
- WANG Jun-wei, HOU Li-jiang, LI Deng, et al. Cloning and Sequence Analysis of Purple Acid Phosphatase PAP1 Gene in Wild Soybean [J]. *Soybean Science*, 2013, 32(01): 596.
- [4] 王丽燕. 硅对野生大豆幼苗耐盐性的影响及其机制研究 [J]. (article.aspx?type=view&id=201305017) 大豆科学, 2013, 32(05): 659. [doi:10.11861/j.issn.1000-9841.2013.05.0659]
- WANG Li-yan. Effects of Silicon on Salt Tolerance of *Glycine soja* Seedlings and Its Mechanism [J]. *Soybean Science*, 2013, 32(01): 659. [doi:10.11861/j.issn.1000-9841.2013.05.0659]
- [5] 陈丽丽, 王明玖, 何丽君, 等. 野生大豆ISSR体系的优化及其在远缘杂交后代鉴定中的利用 [J]. (article.aspx?type=view&id=20130406) 大豆科学, 2013, 32(04): 459. [doi:10.11861/j.issn.1000-9841.2013.04.0459]
- CHEN Li-li, WANG Ming-jiu, HE Li-jun, et al. Optimization for ISSR Reaction System of Wild Soybean and Its Utilization in Distant Hybrid Identification [J]. *Soybean Science*, 2013, 32(01): 459. [doi:10.11861/j.issn.1000-9841.2013.04.0459]
- [6] 郑世英, 萧蓓蓓, 金桂芳. NaCl胁迫对野生大豆和栽培大豆叶绿素及光合特性的影响 [J]. (article.aspx?type=view&id=20130411) 大豆科学, 2013, 32(04): 486. [doi:10.11861/j.issn.1000-9841.2013.04.0486]
- ZHENG Shi-ying, XIAO Bei-Bei, JIN Gui-fang. Effect of NaCl Stress on Chlorophyll Content and Photosynthetic Characteristics of *Glycine soja* and *Glycine max* [J]. *Soybean Science*, 2013, 32(01): 486. [doi:10.11861/j.issn.1000-9841.2013.04.0486]
- [7] 韩英鹏, 程章, 赵雪, 等. 大豆花叶病毒病和疫霉根腐病抗性的SSR标记辅助鉴定 [J]. (article.aspx?type=view&id=201306004) 大豆科学, 2013, 32(06): 740. [doi:10.11861/j.issn.1000-9841.2013.06.0740]

- [8]徐艳平,胡翠美,张文会,等.干旱胁迫对野生大豆幼苗光合作用相关指标的影响[J].(darticle.aspx?type=view&id=201303013)大豆科学,2013,32(03):341.[doi:10.11861/j.issn.1000-9841.2013.03.0341]
XU Yan-ping, HU Cui-mei, ZHANG Wen-hui, et al. Effect of Simulated Drought Stress on Photosynthesis Related Indexes at Seedling Stage of Wild Soybeans[J]. Soybean Science, 2013, 32(01):341. [doi:10.11861/j.issn.1000-9841.2013.03.0341]
- [9]胡卫静,何丽君,何劲莉,等. NaCl胁迫对野生与栽培大豆杂交后代株系生理指标的影响[J].(darticle.aspx?type=view&id=201303015)大豆科学,2013,32(03):349.[doi:10.11861/j.issn.1000-9841.2013.03.0349]
HU Wei-jing, HE Li-jun, HE Jin-li, et al. Effects of NaCl Stress on Physiological Characters of Soybean Hybrids from Glycine max × Glycine soja[J]. Soybean Science, 2013, 32(01):349. [doi:10.11861/j.issn.1000-9841.2013.03.0349]
- [10]王 旻,梁 玉,王欣欣,等.即墨野生大豆主要成分及其营养价值分析[J].(darticle.aspx?type=view&id=201303016)大豆科学,2013,32(03):355.[doi:10.11861/j.issn.1000-9841.2013.03.0355]
WANG Min, LIANG Yu, WANG Xin-xin, et al. Assessment on Nutritional Compositions and Value of Jimo Wild Soybean [J]. Soybean Science, 2013, 32(01):355. [doi:10.11861/j.issn.1000-9841.2013.03.0355]
- [11]程鹏,徐鹏飞,范素杰,等.野生大豆接种大豆疫霉根腐病后过氧化物酶(POD)活性变化[J].(darticle.aspx?type=view&id=201302013)大豆科学,2013,32(02):197.[doi:10.3969/j.issn.1000-9841.2013.02.013]
CHENG Peng, XU Peng-fei, FAN Su-jie, et al. Response of POD Activity in Glycine soja ?Inoculated by Phytophthora sojae [J]. Soybean Science, 2013, 32(01):197. [doi:10.3969/j.issn.1000-9841.2013.02.013]
- [12]张淑珍,靳立梅,徐鹏飞,等.野生大豆接种大豆疫霉根腐病后苯丙氨酸解氨酶(PAL)活性的变化[J].(darticle.aspx?type=view&id=200906021)大豆科学,2009,28(06):1044.[doi:10.11861/j.issn.1000-9841.2009.06.1044]
ZHANG Shu-zhen, JIN Li-mei, XU Peng-fei, et al. Response of PAL Activity to Phytophthora sojae Inoculation in Glycine soja[J]. Soybean Science, 2009, 28(01):1044. [doi:10.11861/j.issn.1000-9841.2009.06.1044]
- [13]任海龙,宋恩亮,马启彬,等.南方三省(区)抗大豆疫霉根腐病野生大豆资源的筛选[J].(darticle.aspx?type=view&id=201006021)大豆科学,2010,29(06):1012.[doi:10.11861/j.issn.1000-9841.2010.06.1012]
REN Hai-long, SONG En-liang, MA Qi-bin, et al. Screening for Resistance Sources to Phytophthora Root Rot in Glycine soja from Three Provinces of Southern China[J]. Soybean Science, 2010, 29(01):1012. [doi:10.11861/j.issn.1000-9841.2010.06.1012]

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