

PPS Keyword List: Keywords related to enzyme from PPS vol. 1 - 20

ENZYME (101)

Keyword		Article title (downloadable pdf link)	Author	Year	DOI
(1-3,1-4)- β -glucanase (1)		Decomposition of (1-3,1-4)- β -Glucan and Expression of the (1-3,1-4)- β -Glucanase Gene in Rice Stems during Ripening	Baba Y, et al.	2001	10.1626/pps.4.230
Acetylcholinesterase (1)		Gravitropic Response of Acetylcholinesterase and IAA-Inositol Synthase in Lazy Rice	Momonoki YS, et al.	2000	10.1626/pps.3.17
ADP-glucose pyrophosphorylase (5)		The Effect of the Amount of Nitrogen Fertilizer on Starch Metabolism in Leaf Sheath of Japonica and Indica Rice Varieties during the Heading Period	Hirano T, et al.	2005	10.1626/pps.8.122
		Activities of Enzymes for Sucrose-Starch Conversion in Developing Endosperm of Rice and Their Association with Grain Filling in Extra-Heavy Panicle Types	Kato T, et al.	2007	10.1626/pps.1.0.442
		Regulation of Expression of D3-type Cyclins and ADP-Glucose Pyrophosphorylase Genes by Sugar, Cytokinin and ABA in Sweet Potato (<i>Ipomoea batatas</i> Lam.)	Nagata T, et al.	2009	10.1626/pps.1.2.434
		Activation of ADP-Glucose Pyrophosphorylase Gene Promoters by a WRKY Transcription Factor, AtWRKY20, in <i>Arabidopsis thaliana</i> L. and Sweet Potato (<i>Ipomoea batatas</i> Lam.)	Nagata T, et al.	2012	10.1626/pps.1.5.10
		Suppression of starch accumulation in 'sugar leaves' of rice affects plant productivity under field conditions	Okamura M, et al.	2017	10.1080/1343943X.2016.1259958
Alcohol dehydrogenase (4)		Anaerobically Induced Proteins in Rice Seedlings: Identification of 40- and 87-kD proteins	Kato-Noguchi H.	2000	10.1626/pps.3.435
		Submergence Acclimation to Low-Temperature Stress in Rice Roots	Kato-Noguchi H.	2007	10.1626/pps.1.0.297
		Submergence Tolerance and Ethanolic Fermentation in Rice Coleoptiles	Kato-Noguchi H.	2001	10.1626/pps.4.62
		Hypoxic Induction of Anoxia Tolerance in Rice Coleoptiles	Kato-Noguchi H.	2002	10.1626/pps.5.211
Amylase (14)	Amylase activity (1)	Accumulation of Soluble Sugar in True Seeds by Priming of Sugar Beet Seeds and the Effects of Priming on Growth and Yield of Drilled Plants	Mukasa Y, et al.	2003	10.1626/pps.6.74
	α -Amylase (10)	Expression of α -Amylase Isoforms and the <i>RAmyLA</i> Gene in Rice (<i>Oryza sativa</i> L.) during Seed Germination, and its Relationship with Coleoptile Length in Submerged Soil	Huang J, et al.	2000	10.1626/pps.3.32
		Expression of the α -Amylase Gene <i>RAmyJD</i> in Rice (<i>Oryza sativa</i> L.) under Aerobic, Hypoxic and Anoxic Conditions	Huang J, et al.	2000	10.1626/pps.3.213
		Germination of Wheat Grains at Various Temperatures in Relation to the Activities of α -Amylase and Endoprotease	Ichinose Y, et al.	2002	10.1626/pps.5.110
		Enhancing the Performance of Direct Seeded Fine Rice by Seed Priming	Farooq M, et al.	2006	10.1626/pps.9.446
		Rice Cultivars with Higher Sucrose Synthase Activity Develop Longer Coleoptiles under Submerged Conditions	Fukuda A, et al.	2008	10.1626/pps.1.1.67
		Improving the Field Emergence Performance of Super Sweet Corn by Sand Priming	Zhao G, et al.	2009	10.1626/pps.1.2.359
		α -Amylase Activity and Soluble Sugar Supply from Endosperm in Relation to Varietal Differences in Seedling Establishment under Low-Temperature Conditions in Rice (<i>Oryza sativa</i> L.)	Ogiwara H, et al.	2010	10.1626/pps.1.3.321
		Anoxia Tolerance and Sugar Level in Roots and Coleoptiles of Aerobically Germinated Rice	Kato-Noguchi H, et al.	2011	10.1626/pps.1.4.325
		Involvement of α -Amylase Genes in Starch Degradation in Rice Leaf Sheaths at the Post-Heading Stage	Sugimura Y, et al.	2015	10.1626/pps.1.8.277
		Suppressive Effects of Low Seed-Soaking Temperatures on Germination of Long-Term-Stored Rice Seeds	Itayagoshi S, et al.	2015	10.1626/pps.1.8.455
	α -Amylase isoform (1)	Changes in α -Amylase Isoforms during Emergence of Rice in Submerged Soil	Huang J, et al.	1999	10.1626/pps.2.12

Amylase (continued)	β -Amylase (2)	Identification of Two Plastid-Targeted β -Amylases in Rice	Hirano T, et al.	2011	10.1626/pps.14.318
		Two β -amylase genes, <i>OsBAM2</i> and <i>OsBAM3</i> , are involved in starch remobilization in rice leaf sheaths	Hirano T, et al.	2016	10.1080/1343943X.2016.1140008
Antioxidant enzyme (3)	Antioxidant enzyme (2)	Effects of Coronatine on Growth, Gas Exchange Traits, Chlorophyll Content, Antioxidant Enzymes and Lipid Peroxidation in Maize (<i>Zea mays</i> L.) Seedlings under Simulated Drought Stress	Wang B, et al.	2008	10.1626/pps.11.283
		Antioxidant Capacity and Damages Caused by Salinity Stress in Apical and Basal Regions of Rice Leaf	Yamane K, et al.	2009	10.1626/pps.12.319
	Antioxidant enzyme activities (1)	Promotive Effect of Priming with 5-Aminolevulinic Acid on Seed Germination Capacity, Seedling Growth and Antioxidant Enzyme Activity in Rice Subjected to Accelerated Ageing Treatment	Kanto U, et al.	2015	10.1626/pps.18.443
Ascorbate peroxidase (3)		Pretreatment with a Low Concentration of Methyl Viologen Decreases the Effects of Salt Stress on Chloroplast Ultrastructure in Rice Leaves (<i>Oryza sativa</i> L.)	Yamane K, et al.	2004	10.1626/pps.7.435
		Promotion of Seedling Growth of Seeds of Rice (<i>Oryza sativa</i> L. cv. Hitomebore) by Treatment with H ₂ O ₂ before Sowing	Sasaki K, et al.	2005	10.1626/pps.8.509
		Transcription Profiles of Genes Encoding Catalase and Ascorbate Peroxidase in the Rice Leaf Tissues under Salinity	Yamane K, et al.	2010	10.1626/pps.13.164
ATPase (1)		Characteristics of Adenosinetriphosphatase and Inorganic Pyrophosphatase in Tonoplasts Isolated from Three CAM Species, <i>Ananas comosus</i> , <i>Kalanchoë pinnata</i> and <i>K. daigremontiana</i>	Chen L-S, et al.	2000	10.1626/pps.3.24
Carbonic anhydrase (1)		Photosynthetic Recovery of a Perennial Grass <i>Leymus chinensis</i> after Different Periods of Soil Drought	Xu ZZ, et al.	2007	10.1626/pps.10.277
Catalase (3)		Pretreatment with a Low Concentration of Methyl Viologen Decreases the Effects of Salt Stress on Chloroplast Ultrastructure in Rice Leaves (<i>Oryza sativa</i> L.)	Yamane K, et al.	2004	10.1626/pps.7.435
		Transcription Profiles of Genes Encoding Catalase and Ascorbate Peroxidase in the Rice Leaf Tissues under Salinity	Yamane K, et al.	2010	10.1626/pps.13.164
		Physiological response of henna (<i>Lawsonia inermis</i> L.) to salicylic acid and salinity	Farahbakhsh H, et al.	2017	10.1080/1343943X.2017.1299581
Debranching enzyme (1)		The Effect of the Amount of Nitrogen Fertilizer on Starch Metabolism in Leaf Sheath of Japonica and Indica Rice Varieties during the Heading Period	Hirano T, et al.	2005	10.1626/pps.8.122
Dehydrogenase (1)		Impact of <i>Bt</i> -cotton on soil microbiological and biochemical attributes	Yasin S, et al.	2016	10.1080/1343943X.2016.1185637
Endoprotease (1)		Germination of Wheat Grains at Various Temperatures in Relation to the Activities of α -Amylase and Endoprotease	Ichinose Y, et al.	2002	10.1626/pps.5.110
Enzyme (1)		Temporal and Spatial Variations of Carbohydrate Content in Rice Leaf Sheath and Their Varietal Differences	He HY, et al.	2005	10.1626/pps.8.546
Glutamate dehydrogenase (1)		Regulation of Ammonium Accumulation during Salt Stress in Rice (<i>Oryza sativa</i> L.) Seedlings	Nguyen HTT, et al.	2005	10.1626/pps.8.397
Glutamate synthase (1)		Regulation of Ammonium Accumulation during Salt Stress in Rice (<i>Oryza sativa</i> L.) Seedlings	Nguyen HTT, et al.	2005	10.1626/pps.8.397
Glutamine synthetase (2)		Regulation of Ammonium Accumulation during Salt Stress in Rice (<i>Oryza sativa</i> L.) Seedlings	Nguyen HTT, et al.	2005	10.1626/pps.8.397
		Ammonia Emission from Leaves of Different Rice (<i>Oryza sativa</i> L.) Cultivars	Kumagai E, et al.	2011	10.1626/pps.14.249
Glyceraldehyde-3-phosphate dehydrogenase (1)		Anaerobically Induced Proteins in Rice Seedlings	Kato-Noguchi H.	2000	10.1626/pps.3.225
Glycine decarboxylase (2)		Inheritance of C ₃ -C ₄ Intermediate Photosynthesis in Reciprocal Hybrids between <i>Moricandia arvensis</i> (C ₃ -C ₄) and <i>Brassica oleracea</i> (C ₃) that Differ in their Genome Constitution	Ueno O, et al.	2007	10.1626/pps.10.68
		Intracellular position of mitochondria and chloroplasts in bundle sheath and mesophyll cells of C ₃ grasses in relation to photorespiratory CO ₂ loss	Hatakeyama Y, et al.	2016	10.1080/1343943X.2016.1212667
IAA-inositol synthase (1)		Gravitropic Response of Acetylcholinesterase and IAA-Inositol Synthase in Lazy Rice	Momonoki YS, et al.	2000	10.1626/pps.3.17
Invertase (1)		Sucrose Metabolism for the Development of Seminal Root in Maize Seedlings	Ogawa A, et al.	2009	10.1626/pps.12.9

Isozyme (2)		Genetic Variation of <i>Zoysia</i> as Revealed by Random Amplified Polymorphic DNA (RAPD) and Isozyme Pattern	Weng JH, et al.	2007	10.1626/pps.1 0.80
		Genetic Variation of <i>Zoysia</i> in Taiwan as Analyzed by Isozyme Patterns and Salinity Tolerance	Weng JH.	2002	10.1626/pps.5. 236
NADP-malic enzyme (1)		Salinity Stress Induces Granal Development in Bundle Sheath Chloroplasts of Maize, an NADP-Malic Enzyme-Type C ₄ Plant	Hasan R, et al.	2006	10.1626/pps.9. 256
NADP(H)-dependent glutamate dehydrogenase (1)		Introduction of a fungal NADP(H)-dependent glutamate dehydrogenase (<i>gdhA</i>) improves growth, grain weight and salt resistance by enhancing the nitrogen uptake efficiency in forage rice	Zhang H, et al.	2016	10.1080/1343 943X.2015.11 33237
NADPH oxidases (1)		NADPH Oxidases Act as Key Enzyme on Germination and Seedling Growth in Barley (<i>Hordeum vulgare</i> L.)	Ishibashi Y, et al.	2010	10.1626/pps.1 3.45
OsFK (1)		Effect of Ethanol on the Expression of Two Fructokinases in Rice Seedlings	Guglielmine tti L, et al.	2014	10.1626/pps.1 7.305
Phosphatase (1)		Impact of <i>Bt</i> -cotton on soil microbiological and biochemical attributes	Yasin S, et al.	2016	10.1080/1343 943X.2016.11 85637
Phosphoenolpyruvate carboxykinase (1)		Variations in physiological, biochemical, and structural traits of photosynthesis and resource use efficiency in maize and teosintes (NADP-ME-type C ₄)	Yabiku T, et al.	2017	10.1080/1343 943X.2017.13 98050
Phosphoenolpyruvate carboxylase (PEPC) (3)		Overexpression of C ₄ Phosphoenolpyruvate Carboxylase Increased Carbon Isotope Discrimination in Transgenic Rice Plants	Agarie S, et al.	2001	10.1626/pps.4. 311
		Effects of High Night Temperature on Crassulacean Acid Metabolism (CAM) Photosynthesis of <i>Kalanchoë pinnata</i> and <i>Ananas comosus</i>	Lin Q, et al.	2006	10.1626/pps.9. 10
		Regulatory Properties of Phosphoenolpyruvate Carboxylase in Crassulacean Acid Metabolism Plants: Diurnal Changes in Phosphorylation State and Regulation of Gene Expression	Theng V, et al.	2007	10.1626/pps.1 0.171
Photosynthetic enzyme (2)		Diurnal Changes in Photosynthesis in Sugarcane Leaves. I. Carbon dioxide exchange rate, photosynthetic enzyme activities and metabolite levels relating to the C ₄ pathway and the Calvin cycle	Du Y-C, et al.	2000	10.1626/pps.3. 3
		Diurnal Changes in Photosynthesis in Sugarcane Leaves. II. Enzyme activities and metabolite levels relating to sucrose and starch metabolism	Du Y-C, et al.	2000	10.1626/pps.3. 9
Polyphenol oxidase (1)		Complementary Genes That Cause Black Ripening Hulls in F ₁ Plants of Crosses between <i>Indica</i> and <i>Japonica</i> Rice Cultivars	Fukuda A, et al.	2012	10.1626/pps.1 5.270
Protease (2)	Protease (1)	Regulation of Ammonium Accumulation during Salt Stress in Rice (<i>Oryza sativa</i> L.) Seedlings	Nguyen HTT, et al.	2005	10.1626/pps.8. 397
	Protease T1 (1)	Kunitz Soybean Trypsin Inhibitor is Modified at its C-terminus by Novel Soybean Thiol Protease (Protease T1)	Sugawara M, et al.	2007	10.1626/pps.1 0.314
Protein kinase (1)		Biochemical Analysis of Protein Kinase Activities in the Dry Seeds of Rice	Kanekatsu M, et al.	2005	10.1626/pps.8. 65
Pyrophosphatase (PPase) (1)		Characteristics of Adenosinetriphosphatase and Inorganic Pyrophosphatase in Tonoplasts Isolated from Three CAM Species, <i>Ananas comosus</i> , <i>Kalanchoë pinnata</i> and <i>K. daigremontiana</i>	Chen L-S, et al.	2000	10.1626/pps.3. 24
Pyruvate decarboxylase (1)		Hypoxic Induction of Anoxia Tolerance in Rice Coleoptiles	Kato-Noguchi H.	2002	10.1626/pps.5. 211
Rubisco (16)	Rubisco (6)	Enhancement of Rice Leaf Photosynthesis by Crossing between Cultivated Rice, <i>Oryza sativa</i> and Wild Rice Species, <i>Oryza rufipogon</i>	Masumoto C, et al.	2004	10.1626/pps.7. 252
		Correlation of Leaf Nitrogen, Chlorophyll and Rubisco Contents with Photosynthesis in a Supernodulating Soybean Genotype Sakukei 4	Maekawa T, et al.	2005	10.1626/pps.8. 419
		Mechanism of High Photosynthetic Capacity in BC ₂ F ₄ Lines Derived from a Cross between <i>Oryza sativa</i> and Wild Relatives <i>O. rufipogon</i>	Masumoto C, et al.	2005	10.1626/pps.8. 539
		Correlation of Chlorophyll Meter Readings with Gas exchange and Chlorophyll Fluorescence in Flag Leaves of Rice (<i>Oryza sativa</i> L.) Plants	Kumagai E, et al.	2009	10.1626/pps.1 2.50
		The QTL Analysis of RuBisCO in Flag Leaves and Non-Structural Carbohydrates in Leaf Sheaths of Rice Using Chromosome Segment Substitution Lines and Backcross Progeny F ₂ Populations	Kanbe T, et al.	2009	10.1626/pps.1 2.224
		Screening of High <i>k_{cat}</i> Rubisco among Poaceae for Improvement of Photosynthetic CO ₂ Assimilation in Rice	Ishikawa C, et al.	2009	10.1626/pps.1 2.345
	Ribulose 1,5-bisphosphate carboxylase/oxygenase (1)	Immunogold Labeling of Rubisco in C ₄ Plant Leaves for Scanning Electron Microscopy	Miyake H, et al.	2001	10.1626/pps.4. 41

Rubisco (continued)	Ribulose-1,5-bisphosphate carboxylase/oxygenase small subunit multigene family (1)	Effects of Nitrogen on the Expression of Ribulose-1,5-Bisphosphate Carboxylase/Oxygenase Small Subunit Multigene Family Members in Rice (<i>Oryza sativa</i> L.)	Miyazaki N, et al.	2013	10.1626/pps.16.37
	Rubisco activase (3)	Enhancement of Rice Leaf Photosynthesis by Crossing between Cultivated Rice, <i>Oryza sativa</i> and Wild Rice Species, <i>Oryza rufipogon</i>	Masumoto C, et al.	2004	10.1626/pps.7.252
		Mechanism of High Photosynthetic Capacity in BC ₂ F ₄ Lines Derived from a Cross between <i>Oryza sativa</i> and Wild Relatives <i>O. rufipogon</i>	Masumoto C, et al.	2005	10.1626/pps.8.539
		Photosynthetic Characteristics of Antisense Transgenic Rice Expressing Reduced Levels of Rubisco Activase	Masumoto C, et al.	2012	10.1626/pps.15.174
	Activity of Rubisco (1)	Effect of Sink-Limitation on Leaf Photosynthetic Rate and Related Characteristics in Soybean Plants	Kasai M, et al.	2008	10.1626/pps.11.223
	Rubisco capacity (1)	Effects of temperature on growth and photosynthesis in the seedling stage of the sheath blight-resistant rice genotype 32R	Kiet HV, et al.	2016	10.1080/1343943X.2015.1128108
	Rubisco content (2)	Varietal Differences in Photosynthetic Rates in Rice Plants, with Special Reference to the Nitrogen Content of Leaves	Hirasawa T, et al.	2010	10.1626/pps.13.53
		Effects of temperature on growth and photosynthesis in the seedling stage of the sheath blight-resistant rice genotype 32R	Kiet HV, et al.	2016	10.1080/1343943X.2015.1128108
Rubisco small subunit (1)	Expression of Photosynthesis-Related Genes during the Leaf Development of a C ₃ Plant Rice as Visualized by <i>In Situ</i> Hybridization	Tsutsumi K, et al.	2006	10.1626/pps.9.232	
Starch branching enzyme (2)	Structural and Immunocytochemical Characterization of the Synthesis and Accumulation of Starch in Sweet Potato (<i>Ipomoea batatas</i> Lam.) Tuberos Root	Kawasaki M, et al.	2002	10.1626/pps.5.152	
	The Effect of the Amount of Nitrogen Fertilizer on Starch Metabolism in Leaf Sheath of Japonica and Indica Rice Varieties during the Heading Period	Hirano T, et al.	2005	10.1626/pps.8.122	
Starch synthase (2)	Effects of Variations in Starch Synthase on Starch Properties and Eating Quality of Rice	Umamoto T, et al.	2008	10.1626/pps.11.472	
	Structural Differences in Amylopectin Affect Waxy Rice Processing	Okamoto K, et al.	2002	10.1626/pps.5.45	
Sucrose synthase (7)	Sucrose synthase (4)	Anaerobically Induced Proteins in Rice Seedlings: Identification of 40- and 87-kD proteins	Kato-Noguchi H.	2000	10.1626/pps.3.435
		Activities of Enzymes for Sucrose-Starch Conversion in Developing Endosperm of Rice and Their Association with Grain Filling in Extra-Heavy Panicle Types	Kato T, et al.	2007	10.1626/pps.10.442
		Rice Cultivars with Higher Sucrose Synthase Activity Develop Longer Coleoptiles under Submerged Conditions	Fukuda A, et al.	2008	10.1626/pps.11.67
		Sucrose Metabolism for the Development of Seminal Root in Maize Seedlings	Ogawa A, et al.	2009	10.1626/pps.12.9
	Sucrose synthesis (1)	Mechanism of High Photosynthetic Capacity in BC ₂ F ₄ Lines Derived from a Cross between <i>Oryza sativa</i> and Wild Relatives <i>O. rufipogon</i>	Masumoto C, et al.	2005	10.1626/pps.8.539
	Sucrose phosphate synthase (2)	Elevated Sucrose-phosphate Synthase Activity in Source Leaves of Potato Plants Transformed with the Maize SPS Gene	Tobias DJ, et al.	1999	10.1626/pps.2.92
A Chemically Inducible Gene Expression System and Its Application to Inducible Gene Suppression in Rice		Hirose T, et al.	2012	10.1626/pps.15.73	
Sucrose-phosphate synthase (4)	Characterization of a Maize Sucrose-phosphate Synthase Protein and Its Effect on Carbon Partitioning in Transgenic Rice Plants	Ono K, et al.	1999	10.1626/pps.2.172	
	Effects of Elevated CO ₂ Concentration on Photosynthetic Carbon Metabolism in Flag-Leaf Blades of Rice before and after Heading	Aoki N, et al.	2003	10.1626/pps.6.52	
	Changes in Photosynthetic Activity and Export of Carbon by Overexpressing a Maize Sucrose-Phosphate Synthase Gene under Elevated CO ₂ in Transgenic Rice	Ono K, et al.	2003	10.1626/pps.6.281	
	Overexpression of a Maize SPS Gene Improves Yield Characters of Potato under Field Conditions	Ishimaru K, et al.	2008	10.1626/pps.11.104	
Superoxide dismutase (SOD) (2)	Pretreatment with a Low Concentration of Methyl Viologen Decreases the Effects of Salt Stress on Chloroplast Ultrastructure in Rice Leaves (<i>Oryza sativa</i> L.)	Yamane K, et al.	2004	10.1626/pps.7.435	
	Water submersion of seeds from three bean cultivars	Martins Vieira GH, et al.	2016	10.1080/1343943X.2015.1128093	