Manuel Becana

List of Publications by Year
in descending order

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99 papers	6,526 citations	61857 43 h-index	66788 78 g-index
101 all docs	101 docs citations	101 times ranked	5276 citing authors

#	Article	IF	Citations
1	Single cellâ€type transcriptome profiling reveals genes that promote nitrogen fixation in the infected and uninfected cells of legume nodules. Plant Biotechnology Journal, 2022, 20, 616-618.	4.1	15
2	Molecular responses of legumes to abiotic stress: post-translational modifications of proteins and redox signaling. Journal of Experimental Botany, 2021, 72, 5876-5892.	2.4	26
3	Genetics of nodulation in Aeschynomene evenia uncovers mechanisms of the rhizobiumâ€“legume symbiosis. Nature Communications, 2021, 12, 829.	5.8	38
4	Unusually Fast bis-Histidyl Coordination in a Plant Hemoglobin. International Journal of Molecular Sciences, 2021, 22, 2740.	1.8	0
5	Three classes of hemoglobins are required for optimal vegetative and reproductive growth of <i>Lotus japonicus</i>: genetic and biochemical characterization of LjGlb2-1. Journal of Experimental Botany, 2021, 72, 7778-7791.	2.4	4
6	Altered Plant and Nodule Development and Protein S-Nitrosylation in Lotus japonicus Mutants Deficient in S-Nitrosoglutathione Reductases. Plant and Cell Physiology, 2020, 61, 105-117.	1.5	25
7	Redox control of the legume-Rhizobium symbiosis. Advances in Botanical Research, 2020, 94, 67-96.	0.5	6
8	A Plant Gene Encoding One-Heme and Two-Heme Hemoglobins With Extreme Reactivities Toward Diatomic Gases and Nitrite. Frontiers in Plant Science, 2020, 11, 600336.	1.7	8
9	Plant hemoglobins: a journey from unicellular green algae to vascular plants. New Phytologist, 2020, 227, 1618-1635.	3.5	52
10	Hemoglobins in the legumeâ€“<i>Rhizobium </i>symbiosis. New Phytologist, 2020, 228, 472-484.	3.5	33
11	CRISPR/Cas9 knockout of leghemoglobin genes in <i>Lotus japonicus</i> uncovers their synergistic roles in symbiotic nitrogen fixation. New Phytologist, 2019, 224, 818-832.	3.5	64
12	Phytoglobins in the nuclei, cytoplasm and chloroplasts modulate nitric oxide signaling and interact with abscisic acid. Plant Journal, 2019, 100, 38-54.	2.8	28
13	Stably Transformed<i>Lotus japonicus</i>Plants Overexpressing Phytoglobin LjGlb1-1 Show Decreased Nitric Oxide Levels in Roots and Nodules as Well as Delayed Nodule Senescence. Plant and Cell Physiology, 2019, 60, 816-825.	1.5	37
14	Sulfate is transported at significant rates through the symbiosome membrane and is crucial for nitrogenase biosynthesis. Plant, Cell and Environment, 2019, 42, 1180-1189.	2.8	29
15	Redefining nitric oxide production in legume nodules through complementary insights from electron paramagnetic resonance spectroscopy and specific fluorescent probes. Journal of Experimental Botany, 2018, 69, 3703-3714.	2.4	32
16	Sulfur Transport and Metabolism in Legume Root Nodules. Frontiers in Plant Science, 2018, 9, 1434.	1.7	49
17	Protein Carbonylation and Glycation in Legume Nodules. Plant Physiology, 2018, 177, 1510-1528.	2.3	47
18	Ascorbate Metabolism and Nitrogen Fixation in Legumes. , 2017, , 471-490.		1

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19	Characterization of the Heme Pocket Structure and Ligand Binding Kinetics of Non-symbiotic Hemoglobins from the Model Legume Lotus japonicus. Frontiers in Plant Science, 2017, 8, 407.	1.7	11
20	Hemoglobin LjGlb1-1 is involved in nodulation and regulates the level of nitric oxide in the<i>Lotus japonicusâ€“Mesorhizobium loti</i>symbiosis. Journal of Experimental Botany, 2016, 67, 5275-5283.	2.4	41
21	Leghemoglobin is nitrated in functional legume nodules in a tyrosine residue within the heme cavity by a nitrite/peroxideâ€dependent mechanism. Plant Journal, 2015, 81, 723-735.	2.8	70
22	Function of glutathione peroxidases in legume root nodules. Journal of Experimental Botany, 2015, 66, 2979-2990.	2.4	44
23	Reactive Oxygen/Nitrogen Species and Antioxidant Defenses in Lotus japonicus. Compendium of Plant Genomes, 2014, , 137-147.	0.3	1
24	Mitochondria are an early target of oxidative modifications in senescing legume nodules. New Phytologist, 2013, 197, 873-885.	3.5	46
25	Plant hemoglobins may be maintained in functional form by reduced flavins in the nuclei, and confer differential tolerance to nitroâ€oxidative stress. Plant Journal, 2013, 76, 875-887.	2.8	44
26	Thiol-based redox signaling in the nitrogen-fixing symbiosis. Frontiers in Plant Science, 2013, 4, 376.	1.7	36
27	Leghemoglobin green derivatives with nitrated hemes evidence production of highly reactive nitrogen species during aging of legume nodules. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 2660-2665.	3.3	81
28	Thiol synthetases of legumes: immunogold localization and differential gene regulation by phytohormones. Journal of Experimental Botany, 2012, 63, 3923-3934.	2.4	22
29	Oxidative stress is a consequence, not a cause, of aluminum toxicity in the forage legume <i>Lotus corniculatus</i>. New Phytologist, 2012, 193, 625-636.	3.5	66
30	Regulation of nonsymbiotic and truncated hemoglobin genes of <i>Lotus japonicus</i> in plant organs and in response to nitric oxide and hormones. New Phytologist, 2011, 189, 765-776.	3.5	71
31	Peroxiredoxins and NADPH-Dependent Thioredoxin Systems in the Model Legume <i>Lotus japonicus</i> Â Â Â. Plant Physiology, 2011, 156, 1535-1547.	2.3	37
32	Recent insights into antioxidant defenses of legume root nodules. New Phytologist, 2010, 188, 960-976.	3.5	147
33	Function of antioxidant enzymes and metabolites during maturation of pea fruits. Journal of Experimental Botany, 2010, 61, 87-97.	2.4	54
34	The glutathione peroxidase gene family of <i>Lotus japonicus</i>: characterization of genomic clones, expression analyses and immunolocalization in legumes. New Phytologist, 2009, 181, 103-114.	3.5	56
35	Effects of salt stress on the expression of antioxidant genes and proteins in the model legume <i>Lotus japonicus</i>. New Phytologist, 2009, 181, 851-859.	3.5	95
36	Immunolocalization of antioxidant enzymes in highâ€pressure frozen root and stem nodules of <i>Sesbania rostrata</i>. New Phytologist, 2009, 183, 395-407.	3.5	28

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37	Knocking Out Cytosolic Cysteine Synthesis Compromises the Antioxidant Capacity of the Cytosol to Maintain Discrete Concentrations of Hydrogen Peroxide in Arabidopsis Â. Plant Physiology, 2008, 147, 562-572.	2.3	92
38	Ascorbate and Homoglutathione Metabolism in Common Bean Nodules under Stress Conditions and during Natural Senescence Â Â. Plant Physiology, 2008, 146, 1282-1292.	2.3	73
39	Functional Characterization of an Unusual Phytochelatin Synthase, LjPCS3, of <i>Lotus japonicus</i>. Plant Physiology, 2008, 148, 536-545.	2.3	41
40	The Response of Carbon Metabolism and Antioxidant Defenses of Alfalfa Nodules to Drought Stress and to the Subsequent Recovery of Plants. Plant Physiology, 2007, 144, 1104-1114.	2.3	210
41	Phytochelatin Synthases of the Model Legume Lotus japonicus. A Small Multigene Family with Differential Response to Cadmium and Alternatively Spliced Variants. Plant Physiology, 2007, 143, 1110-1118.	2.3	91
42	Characterization of Genomic Clones and Expression Analysis of the Three Types of Superoxide Dismutases During Nodule Development in Lotus japonicus. Molecular Plant-Microbe Interactions, 2007, 20, 262-275.	1.4	46
43	A Reassessment of Substrate Specificity and Activation of Phytochelatin Synthases from Model Plants by Physiologically Relevant Metals. Plant Physiology, 2006, 140, 1213-1221.	2.3	45
44	Biosynthesis of Ascorbic Acid in Legume Root Nodules. Plant Physiology, 2006, 141, 1068-1077.	2.3	53
45	The crystal structure of an eukaryotic iron superoxide dismutase suggests intersubunit cooperation during catalysis. Protein Science, 2005, 14, 387-394.	3.1	46
46	Crystal structure of eukaryotic FeSODs suggests intersubunit cooperation during catalysis. Acta Crystallographica Section A: Foundations and Advances, 2005, 61, c212-c213.	0.3	0
47	Localization of Superoxide Dismutases and Hydrogen Peroxide in Legume Root Nodules. Molecular Plant-Microbe Interactions, 2004, 17, 1294-1305.	1.4	115
48	Crystallization and preliminary X-ray diffraction studies of the eukaryotic iron superoxide dismutase (FeSOD) fromVigna unguiculata. Acta Crystallographica Section D: Biological Crystallography, 2003, 59, 1070-1072.	2.5	8
49	Biochemistry and Molecular Biology of Antioxidants in the Rhizobia-Legume Symbiosis Â Â. Plant Physiology, 2003, 133, 499-509.	2.3	192
50	Functional Characterization and Expression of a Cytosolic Iron-Superoxide Dismutase from Cowpea Root Nodules,. Plant Physiology, 2003, 133, 773-782.	2.3	74
51	Molecular Analysis of the Pathway for the Synthesis of Thiol Tripeptides in the Model Legume Lotus japonicus. Molecular Plant-Microbe Interactions, 2003, 16, 1039-1046.	1.4	41
52	Molecular Cloning, Functional Characterization, and Subcellular Localization of Soybean Nodule Dihydrolipoamide Reductase,. Plant Physiology, 2002, 128, 300-313.	2.3	25
53	Molecular Cloning, Functional Characterization, and Subcellular Localization of Soybean Nodule Dihydrolipoamide Reductase. Plant Physiology, 2002, 128, 300-313.	2.3	4
54	Cloning and functional characterization of a homoglutathione synthetase from pea nodules. Physiologia Plantarum, 2002, 115, 69-73.	2.6	17

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55	Effects of water stress on antioxidant enzymes of leaves and nodules of transgenic alfalfa overexpressing superoxide dismutases. Physiologia Plantarum, 2002, 115, 531-540.	2.6	141
56	Molecular cloning, functional characterization, and subcellular localization of soybean nodule dihydrolipoamide reductase. Plant Physiology, 2002, 128, 300-13.	2.3	6
57	Expression Studies of Superoxide Dismutases in Nodules and Leaves of Transgenic Alfalfa Reveal Abundance of Iron-Containing Isozymes, Posttranslational Regulation, and Compensation of Isozyme Activities. Molecular Plant-Microbe Interactions, 2001, 14, 1178-1188.	1.4	21
58	The Antioxidants of Legume Nodule Mitochondria. Molecular Plant-Microbe Interactions, 2001, 14, 1189-1196.	1.4	57
59	Reactive oxygen species and antioxidants in legume nodules. Physiologia Plantarum, 2000, 109, 372-381.	2.6	206
60	Glutathione and Homoglutathione Synthetases of Legume Nodules. Cloning, Expression, and Subcellular Localization. Plant Physiology, 2000, 124, 1381-1392.	2.3	83
61	Stress-Induced Legume Root Nodule Senescence. Physiological, Biochemical, and Structural Alterations. Plant Physiology, 1999, 121, 97-112.	2.3	166
62	Glutathione and Homoglutathione Synthesis in Legume Root Nodules. Plant Physiology, 1999, 121, 879-888.	2.3	111
63	Title is missing!. Plant and Soil, 1998, 201, 137-147.	1.8	268
64	Characterization of phenolic glucosides from soybean root nodules by ion-exchange high performance liquid chromatography, ultraviolet spectroscopy and electrospray mass spectrometry. Phytochemical Analysis, 1998, 9, 171-176.	1.2	24
65	Oxidative Damage in Pea Plants Exposed to Water Deficit or Paraquat1. Plant Physiology, 1998, 116, 173-181.	2.3	389
66	Antioxidant Defenses in the Peripheral Cell Layers of Legume Root Nodules1. Plant Physiology, 1998, 116, 37-43.	2.3	89
67	N2 Fixation, Carbon Metabolism, and Oxidative Damage in Nodules of Dark-Stressed Common Bean Plants. Plant Physiology, 1997, 113, 1193-1201.	2.3	107
68	Complexes of Iron with Phenolic Compounds from Soybean Nodules and Other Legume Tissues: Prooxidant and Antioxidant Properties. Free Radical Biology and Medicine, 1997, 22, 861-870.	1.3	315
69	Involvement of Activated Oxygen in Nitrate-Induced Senescence of Pea Root Nodules. Plant Physiology, 1996, 110, 1187-1195.	2.3	80
70	Activated oxygen and antioxidant defences in iron-deficient pea plants. Plant, Cell and Environment, 1995, 18, 421-429.	2.8	124
71	Antioxidant Defenses against Activated Oxygen in Pea Nodules Subjected to Water Stress. Plant Physiology, 1995, 108, 753-759.	2.3	177
72	Overproduction in Escherichia coli and Characterization of a Soybean Ferric Leghemoglobin Reductase. Plant Physiology, 1994, 106, 203-209.	2.3	18

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73	Cloning and Sequence Analysis of a cDNA Encoding Ferric Leghemoglobin Reductase from Soybean Nodules. Plant Physiology, 1994, 104, 453-459.	2.3	25
74	Drought induces oxidative stress in pea plants. Planta, 1994, 194, 346.	1.6	486
75	Characteristics of Modified Leghemoglobins Isolated from Soybean (Glycine max Merr.) Root Nodules. Plant Physiology, 1994, 104, 1231-1236.	2.3	18
76	Involvement of Molecular Oxygen in the Enzyme-Catalyzed NADH Oxidation and Ferric Leghemoglobin Reduction. Plant Physiology, 1992, 100, 33-39.	2.3	10
77	Oxidation and Reduction of Leghemoglobin in Root Nodules of Leguminous Plants. Plant Physiology, 1992, 98, 1217-1221.	2.3	56
78	Transition metals in legume root nodules: iron-dependent free radical production increases during nodule senescence.. Proceedings of the National Academy of Sciences of the United States of America, 1992, 89, 8958-8962.	3.3	86
79	Flavin-mediated reduction of ferric leghemoglobin from soybean nodules. Planta, 1991, 183, 575-83.	1.6	15
80	Purification and Characterization of Soybean Root Nodule Ferric Leghemoglobin Reductase. Plant Physiology, 1991, 96, 32-37.	2.3	30
81	Enzymatic and nonenzymatic mechanisms for ferric leghemoglobin reduction in legume root nodules.. Proceedings of the National Academy of Sciences of the United States of America, 1990, 87, 7295-7299.	3.3	43
82	Isoenzymes of Superoxide Dismutase in Nodules of <i>Phaseolus vulgaris</i> L., <i>Pisum sativum</i> L., and <i>Vigna unguiculata</i> (L.) Walp.. Plant Physiology, 1989, 90, 1286-1292.	2.3	40
83	Effect of Nitrate on Components of Nodule Leghaemoglobins. Journal of Experimental Botany, 1989, 40, 725-731.	2.4	23
84	Superoxide dismutases in nodules of leguminous plants. Canadian Journal of Botany, 1989, 67, 415-421.	1.2	22
85	Short-term inhibition of legume N2 fixation by nitrate. Planta, 1989, 180, 40-45.	1.6	47
86	Short-term inhibition of legume N2 fixation by nitrate. Planta, 1989, 180, 46-52.	1.6	46
87	Protective mechanisms of nitrogenase against oxygen excess and partially-reduced oxygen intermediates. Physiologia Plantarum, 1989, 75, 429-438.	2.6	33
88	Nitrate and hydrogen peroxide metabolism in Medicago sativa nodules and possible effect on leghaemoglobin function. Physiologia Plantarum, 1988, 72, 755-761.	2.6	20
89	Increased Stress Tolerance of Nodule Activity in the Medicago-Rhizobium-Glomus Symbiosis Under Drought. Journal of Plant Physiology, 1988, 133, 79-83.	1.6	28
90	Nitrogen fixation and nitrate reduction in the root nodules of legumes. Physiologia Plantarum, 1987, 70, 757-765.	2.6	99

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91	Nitrate Metabolism in Alfalfa Root Nodules under Water Stress. Journal of Experimental Botany, 1986, 37, 798-806.	2.4	8
92	Nitrogen Fixation and Leghemoglobin Content during Vegetative Growth of Alfalfa. Journal of Plant Physiology, 1986, 123, 117-125.	1.6	21
93	N2Fixation (C2H2-Reducing Activity) and Leghaemoglobin Content during Nitrate- and Water-Stress-Induced Senescence ofMedicago sativaRoot Nodules. Journal of Experimental Botany, 1986, 37, 597-605.	2.4	32
94	Some Enzymes of Hydrogen Peroxide Metabolism in Leaves and Root Nodules of <i>Medicago sativa</i>. Plant Physiology, 1986, 82, 1169-1171.	2.3	227
95	Nitrate and nitrite reduction by alfalfa root nodules: Accumulation of nitrite in Rhizobium melioti bacteroids and senescence of nodules. Physiologia Plantarum, 1985, 64, 353-358.	2.6	40
96	Nitrate and nitrite reduction in the plant fraction of alfalfa root nodules. Physiologia Plantarum, 1985, 65, 185-188.	2.6	35
97	Levels of Ammonia, Nitrite, and Nitrate in Alfalfa Root Nodules Supplied With Nitrate. Journal of Plant Physiology, 1985, 119, 359-367.	1.6	8
98	Effects of water stress on enzymes of ammonia assimilation in root nodules of alfalfa (Medicago) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 4	2.6	15
99	Root Nodule Enzymes of Ammonia Metabolism from Medicago sativa L. as Influenced by Nitrate Levels. Journal of Plant Physiology, 1984, 116, 285-292.	1.6	10