Bertrand Hirel

List of Publications by Year
in descending order

119 papers	9,482 citations	41627 51 h-index	45040 94 g-index
124 all docs	124 docs citations	124 times ranked	6990 citing authors

#	Article	IF	Citations
1	Dissecting the metabolic reprogramming of maize root under nitrogen-deficient stress conditions. Journal of Experimental Botany, 2022, 73, 275-291.	2.4	12
2	A revised view on the evolution of glutamine synthetase isoenzymes in plants. Plant Journal, 2022, 110, 946-960.	2.8	10
3	Amino Acids | Nitrogen Utilization in Plants I Biological and Agronomic Importance. , 2021, , 127-140.		11
4	Scientific contributions of Pierre Gadal and his labâ€”A tribute to Pierre Gadal (1938â€“2019). Advances in Botanical Research, 2021, , 41-127.	0.5	0
5	Impacts of environmental conditions, and allelic variation of cytosolic glutamine synthetase on maize hybrid kernel production. Communications Biology, 2021, 4, 1095.	2.0	8
6	In Winter Wheat (Triticum Aestivum L.), No-Till Improves Photosynthetic Nitrogen and Water-Use Efficiency. Journal of Crop Science and Biotechnology, 2020, 23, 39-46.	0.7	8
7	Screening for durum wheat (Triticum durum Desf.) cultivar resistance to drought stress using an integrated physiological approach. Journal of Crop Science and Biotechnology, 2020, 23, 355-365.	0.7	6
8	Beneficial soil-borne bacteria and fungi: a promising way to improve plant nitrogen acquisition. Journal of Experimental Botany, 2020, 71, 4469-4479.	2.4	56
9	NADH-GOGAT Overexpression Does Not Improve Maize (Zea mays L.) Performance Even When Pyramiding with NAD-IDH, GDH and GS. Plants, 2020, 9, 130.	1.6	27
10	Identification of Phenotypic and Physiological Markers of Salt Stress Tolerance in Durum Wheat (Triticum Durum Desf.) through Integrated Analyses. Agronomy, 2019, 9, 844.	1.3	13
11	Variability for Nitrogen Management in Genetically-Distant Maize (Zea mays L.) Lines: Impact of Post-Silking Nitrogen Limiting Conditions. Agronomy, 2018, 8, 309.	1.3	3
12	Genomics of Nitrogen Use Efficiency in Maize: From Basic Approaches to Agronomic Applications. Compendium of Plant Genomes, 2018, , 259-286.	0.3	5
13	Labeling Maize (<i>Zea mays</i> L.) Leaves with ¹⁵NH₄⁺ and Monitoring Nitrogen Incorporation into Amino Acids by GC/MS Analysis. Current Protocols in Plant Biology, 2018, 3, e20073.	2.8	9
14	Exploiting the Genetic Diversity of Maize Using a Combined Metabolomic, Enzyme Activity Profiling, and Metabolic Modeling Approach to Link Leaf Physiology to Kernel Yield. Plant Cell, 2017, 29, 919-943.	3.1	57
15	Agricultural practices to improve nitrogen use efficiency through the use of arbuscular mycorrhizae: Basic and agronomic aspects. Plant Science, 2017, 264, 48-56.	1.7	101
16	Investigating the Combined Effect of Tillage, Nitrogen Fertilization and Cover Crops on Nitrogen Use Efficiency in Winter Wheat. Agronomy, 2017, 7, 66.	1.3	15
17	Spore Density of Arbuscular Mycorrhizal Fungi is Fostered by Six Years of a No-Till System and is Correlated with Environmental Parameters in a Silty Loam Soil. Agronomy, 2017, 7, 38.	1.3	13
18	Metabolic profiling of two maize (Zea mays L.) inbred lines inoculated with the nitrogen fixing plant-interacting bacteria Herbaspirillum seropedicae and Azospirillum brasilense. PLoS ONE, 2017, 12, e0174576.	1.1	67

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19	In Winter Wheat, No-Till Increases Mycorrhizal Colonization thus Reducing the Need for Nitrogen Fertilization. Agronomy, 2016, 6, 38.	1.3	11
20	Cover crops prevent the deleterious effect of nitrogen fertilisation on bacterial diversity by maintaining the carbon content of ploughed soil. Geoderma, 2016, 281, 49-57.	2.3	75
21	Breeding for increased nitrogenâ€use efficiency: a review for wheat (<i><scp>T</scp>.Âaestivum) Tj ETQq1 1 0.784314 rgBT /Overlock	1.0	164
22	Genetic variability of the phloem sap metabolite content of maize (Zea mays L.) during the kernel-filling period. Plant Science, 2016, 252, 347-357.	1.7	26
23	Conversion to No-Till Improves Maize Nitrogen Use Efficiency in a Continuous Cover Cropping System. PLoS ONE, 2016, 11, e0164234.	1.1	24
24	Resolving the Role of Plant NAD-Glutamate Dehydrogenase: III. Overexpressing Individually or Simultaneously the Two Enzyme Subunits Under Salt Stress Induces Changes in the Leaf Metabolic Profile and Increases Plant Biomass Production. Plant and Cell Physiology, 2015, 56, 1918-1929.	1.5	41
25	An integrated â€œomicsâ€ approach to the characterization of maize (Zea mays L.) mutants deficient in the expression of two genes encoding cytosolic glutamine synthetase. BMC Genomics, 2014, 15, 1005.	1.2	15
26	Assessing the Metabolic Impact of Nitrogen Availability Using a Compartmentalized Maize Leaf Genome-Scale Model Â Â Â. Plant Physiology, 2014, 166, 1659-1674.	2.3	80
27	Nitrogen-use efficiency in maize (Zea mays L.): from 'omics' studies to metabolic modelling. Journal of Experimental Botany, 2014, 65, 5657-5671.	2.4	80
28	Further insights into the isoenzyme composition and activity of glutamate dehydrogenase in Arabidopsis thaliana. Plant Signaling and Behavior, 2013, 8, e23329.	1.2	22
29	Glutamate dehydrogenase isoenzyme 3 (GDH3) of Arabidopsis thaliana is regulated by a combined effect of nitrogen and cytokinin. Plant Physiology and Biochemistry, 2013, 73, 368-374.	2.8	26
30	Resolving the Role of Plant Glutamate Dehydrogenase: II. Physiological Characterization of Plants Overexpressing the Two Enzyme Subunits Individually or Simultaneously. Plant and Cell Physiology, 2013, 54, 1635-1647.	1.5	57
31	Characterization of a NADH-Dependent Glutamate Dehydrogenase Mutant of <i>Arabidopsis</i> Demonstrates the Key Role of this Enzyme in Root Carbon and Nitrogen Metabolism. Plant Cell, 2012, 24, 4044-4065.	3.1	134
32	The use of metabolomics integrated with transcriptomic and proteomic studies for identifying key steps involved in the control of nitrogen metabolism in crops such as maize. Journal of Experimental Botany, 2012, 63, 5017-5033.	2.4	175
33	Can genetic variability for nitrogen metabolism in the developing ear of maize be exploited to improve yield?. New Phytologist, 2012, 194, 440-452.	3.5	26
34	An integrated statistical analysis of the genetic variability of nitrogen metabolism in the ear of three maize inbred lines (Zea mays L.). Journal of Experimental Botany, 2011, 62, 2309-2318.	2.4	24
35	Improving Nitrogen Use Efficiency in Crops for Sustainable Agriculture. Sustainability, 2011, 3, 1452-1485.	1.6	365
36	Metabolic profiling of maize mutants deficient for two glutamine synthetase isoenzymes using ¹Hâ€NMRâ€based metabolomics. Phytochemical Analysis, 2010, 21, 102-109.	1.2	31

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37	Analysis of amino acid metabolism in the ear of maize mutants deficient in two cytosolic glutamine synthetase isoenzymes highlights the importance of asparagine for nitrogen translocation within sink organs. Plant Biotechnology Journal, 2010, 8, 966-978.	4.1	71
38	Resolving the Role of Plant Glutamate Dehydrogenase. I. in vivo Real Time Nuclear Magnetic Resonance Spectroscopy Experiments. Plant and Cell Physiology, 2009, 50, 1761-1773.	1.5	110
39	A quantitative genetic study for elucidating the contribution of glutamine synthetase, glutamate dehydrogenase and other nitrogen-related physiological traits to the agronomic performance of common wheat. Theoretical and Applied Genetics, 2009, 119, 645-662.	1.8	92
40	Nitrogen metabolism in the developing ear of maize (<i>Zea mays</i>): analysis of two lines contrasting in their mode of nitrogen management. New Phytologist, 2009, 184, 340-352.	3.5	56
41	Gene expression, cellular localisation and function of glutamine synthetase isozymes in wheat (Triticum aestivum L.). Plant Molecular Biology, 2008, 67, 89-105.	2.0	172
42	In winter wheat (Triticum aestivum L.), post-anthesis nitrogen uptake and remobilisation to the grain correlates with agronomic traits and nitrogen physiological markers. Field Crops Research, 2007, 102, 22-32.	2.3	365
43	The challenge of improving nitrogen use efficiency in crop plants: towards a more central role for genetic variability and quantitative genetics within integrated approaches. Journal of Experimental Botany, 2007, 58, 2369-2387.	2.4	1,066
44	Two Cytosolic Glutamine Synthetase Isoforms of Maize Are Specifically Involved in the Control of Grain Production. Plant Cell, 2006, 18, 3252-3274.	3.1	416
45	Combined agronomic and physiological aspects of nitrogen management in wheat highlight a central role for glutamine synthetase. New Phytologist, 2006, 169, 265-278.	3.5	108
46	Rubisco synthesis, turnover and degradation: some new thoughts on an old problem. New Phytologist, 2006, 169, 445-448.	3.5	35
47	Modelling postsilking nitrogen fluxes in maize (Zea mays) using 15 Nâ€labelling field experiments. New Phytologist, 2006, 172, 696-707.	3.5	96
48	Effects ofÂtheÂoverexpression ofÂaÂsoybean cytosolic glutamine synthetase gene (GS15) linked toÂorgan-specific promoters onÂgrowth andÂnitrogen accumulation ofÂpea plants supplied with ammonium. Plant Physiology and Biochemistry, 2006, 44, 543-550.	2.8	28
49	From Agronomy and Ecophysiology to Molecular Genetics for Improving Nitrogen Use Efficiency in Crops. Journal of Crop Improvement, 2006, 15, 213-257.	0.9	27
50	Control of the Synthesis and Subcellular Targeting of the Two GDH Genes Products in Leaves and Stems of Nicotiana plumbaginifolia and Arabidopsis thaliana. Plant and Cell Physiology, 2006, 47, 410-418.	1.5	44
51	Nitrogen management and senescence in two maize hybrids differing in the persistence of leaf greenness: agronomic, physiological and molecular aspects. New Phytologist, 2005, 167, 483-492.	3.5	67
52	Physiology of maize I: A comprehensive and integrated view of nitrogen metabolism in a C4 plant. Physiologia Plantarum, 2005, 124, 167-177.	2.6	67
53	Physiology of maize II: Identification of physiological markers representative of the nitrogen status of maize (Zea mays) leaves during grain filling. Physiologia Plantarum, 2005, 124, 178-188.	2.6	76
54	Changes in the Cellular and Subcellular Localization of Glutamine Synthetase and Glutamate Dehydrogenase During Flag Leaf Senescence in Wheat (Triticum aestivum L.). Plant and Cell Physiology, 2005, 46, 964-974.	1.5	88

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55	Differential change in root protein patterns of two wheat varieties under high and low nitrogen nutrition levels. Plant Science, 2005, 168, 81-87.	1.7	41
56	Glutamate Dehydrogenase of Tobacco Is Mainly Induced in the Cytosol of Phloem Companion Cells When Ammonia Is Provided Either Externally or Released during Photorespiration. Plant Physiology, 2004, 136, 4308-4317.	2.3	102
57	Variation in nitrate uptake and assimilation between two ecotypes of Lotus japonicus and their recombinant inbred lines. Physiologia Plantarum, 2004, 120, 124-131.	2.6	29
58	New insights towards the function of glutamate dehydrogenase revealed during source-sink transition of tobacco (Nicotiana tabacum) plants grown under different nitrogen regimes. Physiologia Plantarum, 2004, 120, 220-228.	2.6	106
59	Prospects for improving nitrogen use efficiency: Insights given by 15N-labelling experiments. Phytochemistry Reviews, 2003, 2, 133-144.	3.1	2
60	Overexpression of a soybean cytosolic glutamine synthetase gene linked to organ-specific promoters in pea plants grown in different concentrations of nitrate. Planta, 2003, 216, 467-474.	1.6	60
61	Glutamate dehydrogenase in plants: is there a new story for an old enzyme?. Plant Physiology and Biochemistry, 2003, 41, 565-576.	2.8	153
62	Does Lowering Glutamine Synthetase Activity in Nodules Modify Nitrogen Metabolism and Growth of Lotus japonicus?. Plant Physiology, 2003, 133, 253-262.	2.3	68
63	Improvement of Nitrogen Utilization. Focus on Biotechnology, 2003, , 201-220.	0.4	3
64	A Novel HMG A-Like Protein Binds Differentially to the AT-Rich Regions Located in the Far Distal and Proximal Parts of a Soybean Glutamine Synthetase Gene (GS15) Promoter. Plant and Cell Physiology, 2002, 43, 1006-1016.	1.5	13
65	Genetic and Physiological Analysis of Germination Efficiency in Maize in Relation to Nitrogen Metabolism Reveals the Importance of Cytosolic Glutamine Synthetase. Plant Physiology, 2002, 130, 1860-1870.	2.3	94
66	Diurnal changes in ammonia assimilation in transformed tobacco plants expressing ferredoxin-dependent glutamate synthase mRNA in the antisense orientation. Plant Science, 2002, 163, 59-67.	1.7	39
67	Photorespiration-dependent increases in phospho enol pyruvate carboxylase, isocitrate dehydrogenase and glutamate dehydrogenase in transformed tobacco plants deficient in ferredoxin-dependent glutamine-Ã-ketoglutarate aminotransferase. Planta, 2002, 214, 877-886.	1.6	56
68	Cellular and subcellular localisation of glutamine synthetase and glutamate dehydrogenase in grapes gives new insights on the regulation of carbon and nitrogen metabolism. Planta, 2002, 216, 245-254.	1.6	39
69	The Biochemistry, Molecular Biology, and Genetic Manipulation of Primary Ammonia Assimilation. Advances in Photosynthesis and Respiration, 2002, , 71-92.	1.0	17
70	Ammonia Assimilation. , 2001, , 79-99.		83
71	Towards a Better Understanding of the Genetic and Physiological Basis for Nitrogen Use Efficiency in Maize. Plant Physiology, 2001, 125, 1258-1270.	2.3	429
72	Glutamine and Î±-ketoglutarate are metabolite signals involved in nitrate reductase gene transcription in untransformed and transformed tobacco plants deficient in ferredoxin-glutamine-Î±-ketoglutarate aminotransferase. Planta, 2001, 213, 265-271.	1.6	53

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73	The challenge of remobilisation in plant nitrogen economy. A survey of physio-agronomic and molecular approaches. Annals of Applied Biology, 2001, 138, 69-81.	1.3	180
74	Title is missing!. Plant and Soil, 2000, 221, 81-93.	1.8	44
75	Leaf-specific overexpression of plastidic glutamine synthetase stimulates the growth of transgenic tobacco seedlings. Planta, 2000, 210, 252-260.	1.6	107
76	Immunolocalization of glutamine synthetase in senescing tobacco (Nicotiana tabacum L.) leaves suggests that ammonia assimilation is progressively shifted to the mesophyll cytosol. Planta, 2000, 211, 519-527.	1.6	85
77	Characterization of the sink/source transition in tobacco (Nicotiana tabacum L.) shoots in relation to nitrogen management and leaf senescence. Planta, 2000, 211, 510-518.	1.6	432
78	Glutamine synthetase and glutamate dehydrogenase isoforms in maize leaves: localization, relative proportion and their role in ammonium assimilation or nitrogen transport. Planta, 2000, 211, 800-806.	1.6	57
79	Glutamine Synthetase in the Phloem Plays a Major Role in Controlling Proline Production. Plant Cell, 1999, 11, 1995.	3.1	1
80	Simultaneous Expression of NAD-Dependent Isocitrate Dehydrogenase and Other Krebs Cycle Genes after Nitrate Resupply to Short-Term Nitrogen-Starved Tobacco. Plant Physiology, 1999, 120, 717-726.	2.3	79
81	Glutamine Synthetase in the Phloem Plays a Major Role in Controlling Proline Production. Plant Cell, 1999, 11, 1995-2011.	3.1	173
82	A strong constitutive positive element is essential for the ammonium-regulated expression of a soybean gene encoding cytosolic glutamine synthetase. Plant Molecular Biology, 1999, 39, 551-564.	2.0	22
83	Does root glutamine synthetase control plant biomass production in Lotus japonicus L.?. Planta, 1999, 209, 495-502.	1.6	69
84	Glutamine Synthetase in Higher Plants Regulation of Gene and Protein Expression from the Organ to the Cell. Plant and Cell Physiology, 1999, 40, 1187-1193.	1.5	154
85	Regulation of the subunit composition of plastidic glutamine synthetase of the wild-type and of the phytochrome-deficient aurea mutant of tomato by blue/UV-A- or by UV-B-light. Plant Molecular Biology, 1998, 37, 689-700.	2.0	12
86	Two nitrite reductase isoforms are present in tomato cotyledons and are regulated differently by UV-A or UV-B light and during plant development. Planta, 1998, 207, 229-234.	1.6	9
87	Influence of UV-A or UV-B light and of the nitrogen source on the induction of ferredoxin-dependent glutamate synthase in etiolated tomato cotyledons. Plant Physiology and Biochemistry, 1998, 36, 789-797.	2.8	8
88	The expression of the tobacco genes encoding plastidic glutamine synthetase or ferredoxin-dependent glutamate synthase does not depend on the rate of nitrate reduction, and is unaffected by suppression of photorespiration. Journal of Experimental Botany, 1997, 48, 1175-1184.	2.4	41
89	Manipulating the pathway of ammonia assimilation in transgenic non-legumes and legumes. Zeitschrift Fur Pflanzenernahrung Und Bodenkunde = Journal of Plant Nutrition and Plant Science, 1997, 160, 283-290.	0.4	26
90	Ammonia regulated expression of a soybean gene encoding cytosolic glutamine synthetase is not conserved in two heterologous plant systems. Plant Science, 1997, 125, 75-85.	1.7	6

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91	Coaction of light and the nitrogen substrate in controlling the expression of the tomato genes encoding nitrite reductase and nitrate reductase. Journal of Plant Physiology, 1997, 151, 151-158.	1.6	10
92	A role for cytosolic glutamine synthetase in the remobilization of leaf nitrogen during water stress in tomato. Physiologia Plantarum, 1997, 99, 241-248.	2.6	99
93	Overexpression of a soybean gene encoding cytosolic glutamine synthetase in shoots of transgenic Lotus corniculatus L. plants triggers changes in ammonium assimilation and plant development. Planta, 1997, 201, 424-433.	1.6	132
94	Localization of tobacco cytosolic glutamine synthetase enzymes and the corresponding transcripts shows organ- and cell-specific patterns of protein synthesis and gene expression. Plant Molecular Biology, 1996, 31, 803-817.	2.0	83
95	Isolation of cDNAs encoding two purine biosynthetic enzymes of soybean and expression of the corresponding transcripts in roots and root nodules. Plant Molecular Biology, 1996, 32, 751-757.	2.0	19
96	Regulation of the subunit composition of tomato plastidic glutamine synthetase by light and the nitrogen source. Planta, 1996, 200, 213.	1.6	37
97	Identification of several soybean cytosolic glutamine synthetase transcripts highly or specifically expressed in nodules: expression studies using one of the corresponding genes in transgenic Lotus corniculatus. Plant Molecular Biology, 1995, 27, 1-15.	2.0	26
98	Multiple functions of promoter sequences involved in organ-specific expression and ammonia regulation of a cytosolic soybean glutamine synthetase gene in transgenic Lotus corniculatus. Plant Journal, 1993, 3, 405-414.	2.8	54
99	Subcellular and immunocytochemical localization of the enzymes involved in ammonia assimilation in mesophyll and bundle-sheath cells of maize leaves. Planta, 1993, 191, 129.	1.6	46
100	Metabolic and developmental control of cytosolic glutamine synthetase genes in soybean. Physiologia Plantarum, 1993, 89, 613-617.	2.6	6
101	Metabolic and developmental control of cytosolic glutamine synthetase genes in soybean. Physiologia Plantarum, 1993, 89, 613-617.	2.6	7
102	Forcing expression of a soybean root glutamine synthetase gene in tobacco leaves induces a native gene encoding cytosolic enzyme. Plant Molecular Biology, 1992, 20, 207-218.	2.0	45
103	Nucleotide sequence of a tobacco cDNA encoding plastidic glutamine synthetase and light inducibility, organ specificity and diurnal rhythmicity in the expression of the corresponding genes of tobacco and tomato. Plant Molecular Biology, 1992, 19, 367-379.	2.0	97
104	Purification and properties of tobacco ferredoxin-dependent glutamate synthase, and isolation of corresponding cDNA clones. Planta, 1992, 187, 266-74.	1.6	39
105	Glutamine synthetase genes are regulated by ammonia provided externally or by symbiotic nitrogen fixation. EMBO Journal, 1987, 6, 1167-1171.	3.5	126
106	New Artificial Electron Donors for <i>in Vitro</i> Assay of Nitrate Reductase Isolated from Cultured Tobacco Cells and Other Organisms. Plant Physiology, 1986, 80, 946-949.	2.3	13
107	Multiple Subunit Composition of Chloroplastic Glutamine Synthetase of Nicotiana tabacum L. Plant Physiology, 1984, 74, 448-450.	2.3	64
108	Cytosolic glutamine synthetase in higher plants. A comparative immunological study. FEBS Journal, 1984, 138, 63-66.	0.2	49

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109	Glutamine synthetase in ribulose 1,5-bisphosphate carboxylase/oxygenase deficient tobacco mutants in cell suspension culture. Plant Cell Reports, 1984, 3, 106-108.	2.8	3
110	Some regulatory properties of glutamine synthetase isoforms in a C4 plant: Pennisetum americanum (L.) leeke. Plant Science Letters, 1983, 32, 169-175.	1.9	5
111	Immuno chemical characterization of nitrate reductase from spinach leaves and roots. Biochemical and Biophysical Research Communications, 1983, 113, 733-737.	1.0	14
112	Glutamine Synthetases of Higher Plants. Plant Physiology, 1983, 72, 22-25.	2.3	299
113	Glutamine Synthetase in Spinach Leaves. Plant Physiology, 1982, 69, 983-987.	2.3	71
114	A new high-performance liquid chromatography assay for glutamine synthetase and glutamate synthase in plant tissues. Analytical Biochemistry, 1982, 125, 24-29.	1.1	47
115	Evidence for a cytosolic-dependent light induction of chloroplastic glutamine synthetase during greening of etiolated rice leaves. Planta, 1982, 155, 17-23.	1.6	48
116	Glutamine synthetase isoforms in leaves of a C4 plant: Sorghum vulgare. Physiologia Plantarum, 1982, 54, 69-74.	2.6	42
117	Glutamine Synthetase Isoforms in Pea Leaves: Intracellular Localization. Zeitschrift FÃ¼r Pflanzenphysiologie, 1981, 102, 315-319.	1.4	42
118	Glutamine Synthetase in Rice. Plant Physiology, 1980, 66, 619-623.	2.3	197
119	Occurrence and influence of light on the relative proportions of two glutamine sythetases in rice leaves. Plant Science Letters, 1979, 15, 271-277.	1.9	78