

Références bibliographiques

-A-

- Abou El Nasr H M., Kandil H M., El Kerdawy A., Dawlat Khamis H S., El-Shaer H M. (1996)** Value of processed saltbush and acacia shrubs as sheep fodders under the arid conditions of Egypt. *Small Ruminant Research*, 24: 15-20.
- Acherkouk M., El Houmaizi M A. (2013)** Évaluation de l'impact des aménagements pastoraux sur la dynamique de la production des pâturages dégradés au Maroc oriental *Ecologia Mediterranea*. 39 (2): 69-84.
- Adriano D C. (2001)** Trace elements in terrestrial environments biogeochemistry, bioavailability and risks of metals, 2nd edn. Springer, 867p.
- Ajibade F O., Adeniran K A., Egbuna C K. (2013)** Phytoremediation efficiencies of water hyacinth in removing heavy metals in domestic sewage (A case study of university of Ilorin, Nigeria). *The International Journal of Engineering and Science (IJES)*, 2(12): 16-27.
- Alexander J., Benford D., Cockburn A., Cravedi J P., Dogliotti E. (2009)** Scientific Opinion of the Panel on Contaminants in the Food Chain on a request from the European Commission on cadmium in food, *The EFSA Journal*, 980: 1-139.
- Alkorta I., Hernandez-Allica J., Becerril J M., Amezaga I., Albizu I., Garbisu C. (2004)** Recent findings on the phytoremediation of soils contaminated with environmentally toxic heavy metals and metalloids such as zinc, cadmium, lead, and arsenic, *Reviews in Environmental Science and Bio/Technology*, 3: 71-90.
- Andujar P., Bensefa-Colas L., Descatha A. (2010)** Intoxication aiguë et chronique au cadmium. Acute and chronic cadmium poisoning. *La Revue de Médecine Interne*.31: 107-115.
- Aoun M. (2009)** Action du cadmium sur les plants de moutarde indienne (*Brassica juncea* (L.) Czern) néoformés à partir de couches cellulaires minces et issus de semis. Analyses physiologiques et rôle des polyamines. Thèse doct Univer Bretagne Occidentale. 135p.
- Arduini I., Godbold D., Onnis A. (1994)** Cadmium and copper change root growth and morphology of *Pinus pinea* and *Pinus pinaster* seedlings. *Physiol. Plant*, 92: 675-680.
- Arnon D. (1949)** Copper enzymes in isolated chloroplasts. Polyphenoloxidase in *beta vulgaris* *Plant Physiol*, 24(1): 1-15.

Asp H., Gussarsson M., Adalsteinson S., Lensén P. (1994) Control of potassium influx in roots of birch (*Betula pendula*) seedlings exposed to cadmium, *J. Exp. Bot.*, 45: 1823–1827.

-B-

Baba Ahmed A. (2012) Etude de contamination et d'accumulation de quelques métaux lourds dans des céréales, des légumes et des sols agricoles irrigués par des eaux usées de la ville de hammam boughrara, thèse Doc. Univer. Abou Bekr Belkaid –Tlemcen, Algérie, 256p.

Bajji M., Kinet J M., Lutts S. (1998) Salt stress effects on roots and leaves of *Atriplex halimus* L., and their corresponding callus cultures. *Plant Science*, 137: 131-142.

Baker A J M. (1981) Accumulators and excluders. Strategies in the response of plants to heavy metals. *Journal of Plant Nutrition* 3: 643-654.

Baker A J M., Walker P L. (1989) Physiological responses of plants to heavy metals and the quantification of tolerance and toxicity. *Chem. Speciation Bioavail.*, 1: 7-17.

Baldwin P R., Butcher D J. (2007) Phytoremediation of arsenic by two hyperaccumulators in a hydroponic environment, *Microchemical Journal*, 85: 297–300.

Bankaji I., Caçador I., Sleimi N. (2015) Physiological and biochemical responses of *Suaeda fruticosa* to cadmium and copper stresses: growth, nutrient uptake, antioxidant enzymes, phytochelatin, and glutathione levels, *Environ. Sci. Pollut. Res.*, 22: 13058-13069.

Bankaji I., Sleimi N., Lopez-Climent M F., Perez-Clemente R M., Gomez-Cadenas A. (2014) Effects of combined abiotic stresses on growth, trace element accumulation, and phytohormone regulation in two halophytic species, *J. Plant Growth Regul.*, 33: 632-643.

Barceló J., Poschenrieder C. (2003) Phytoremediation: principles and perspectives. Contributions to science. Institut d'Estudis Catalans, Barcelona. 2 (3): 333-344.

Barcelo J., Vázquez M D., Poschenrieder C. (1988) Cadmium induced structural and ultrastructural changes in the vascular system of bush bean stems. *Bot Acta*. 101: 254-261.

Benabid A. (2000) Flore et écosystème du Maroc : évaluation et préservation de la biodiversité. *Ibiss Press*, 359p.

Benavides M P., Gallego S M., Tomaro M L. (2005) Cadmium toxicity in plants. *Braz J Plant Physiol*. 17(1): 21-34.

Ben Ghnaya A., Charles G., Hourmant A., Ben Hamida J., Branchard M. (2009) Physiological behaviour of four rapeseed cultivar (*Brassica napus* L.) submitted to metal stress, *C. R. Biologies* 332: 363–370.

- Ben Hafoune M. (2012)** Lutte contre la sécheresse et la désertification : les réponses probantes de l'Oriental marocain, pp : 18-20. <http://agridape.leisa.info>.
- Ben Hassine A., Bouzid S. (2008)** Evaluation des capacités de résistance d'*Atriplex halimus* L. face au cadmium. *Geo.Eco.Trop*, 32: 17-20.
- Ben Hassine A., Ghanem M E, Bouzid S., Lutts S. (2008)** An inland and a coastal population of the Mediterranean xero-halophyte species *Atriplex halimus* L. differ in their ability to accumulate proline and glycinebetaine in response to salinity and water stress. *Journal of Experimental Botany*, 1-12.
- Ben Salem H., Nefzaoui A., Makkar H P S. (2004)** Towards better utilisation of non -conventional feed sources by sheep and goats in some African and Asian countries. In: Ben Salem H. (ed.) Nefzaoui A. (ed.), Morand-Fehr P. (ed.). Nutrition and feeding strategies of sheep and goats under harsh climates. Zaragoza: CIHEAM, pp : 177-187 (Options Méditerranéennes : Série A. Séminaires Méditerranéen s; n .59).
- Ben Youssef N., Nouairi I., Ben Temime S., Taamalli W., Zarrouk M., Ghorbal M H., Daoud D M. (2005)** Effets du cadmium sur le métabolisme des lipides de plantules de colza (*Brassica napus* L.). *C. R. Biol.*, 328 : 745–757.
- Bert V., Deram A. (1999)** Guide des phytotechnologies : utilisation des plantes dans la dépollution et la réhabilitation des sites contaminés par les métaux lourds, France, Environnement et Développement alternatif.
- Bidar G. (2007)** Intérêt du phytomanagement dans la gestion durable des sols pollués. Recherche des mécanismes biologiques de transfert et de localisation de Cd, Pb, Zn dans les strates herbacées et arborées, Thèse Doct. Univer. Du Littoral Côte D'opale, 288p.
- Brignon J M., Malherbe L. (2005)** Cadmium et ses dérivés. Données technicoéconomiques sur les substances chimiques en France, INERIS, Verneuil en Halatte, 25 p.
- Brooks R R. (1994)** Plants and Chemical Elements: Biochemistry, Uptake, Tolerance and Toxicity. (Ed. Gargo M E), VCH Verlagsgesellschaft, Weinheim, Germany, pp: 88-105.

-C-

- Campos V M., Merino I., Casado R., Pacios L F., Gómez L. (2008)** Review. Phytoremediation of organic pollutants, *Spanish Journal of Agricultural Research*, 6: 38-47.
- Chadefaud M., Emberger L. (1960)** Traité de botanique : systématique, les végétaux vasculaires. Tome II. Ed. Masson et Cie. Paris, 1540p.

- Chagra A. (2010)** Effets du cadmium et des traitements combinés Cd/Ca²⁺ à l'échelle cellulaire et subcellulaire, Thèse Doc. Univer. Université Badji Mokhtar Annaba, Algérie, 160p.
- Chaîneau C H., Morel J L., Oudot J. (2000)** Biodegradation of fuel oil hydrocabons in the rhizosphere of maize (*Zea mays* L.). *J. Envir. Qual.*, 29: 569-578.
- Chaney R L., Malik M., Li Y M., Brown S L., Brewer E P., Angle J S., Baker A J M. (1997)** Phytoremediation of soil metals. *Curr. Opin. Biotechnol.*, 8: 279-284.
- Chang Y., Zouari M., Gogorcena Y., Lucena J J., Abadia J. (2003)** Effects of cadmium and lead on ferric chelate reductase activities in sugar beet roots. *Plant Physiology and Biochemistry*, 41: 999-1005.
- Chaudhry T M., Hayes W J., Khan A G., Khoo C S. (1998)** Phytoremediatio: focusing on accumulator plants that remediate matel contaminated soils, *Australian Jourbal of Ecotoxicology*, 4:37-51.
- Chevrier E. (2013)** La phytoremédiation, une solution d'avenir pour le Québec. Essai présenté au Centre universitaire de formation en environnement en vue de l'obtention du grade de maitre en environnement (M. env.). Université de Sherbrooke. 91 p.
- Clemens S. (2001)** Molecular mechanisms of plant metal tolerance and homeostasis. *Planta*, 212: 475-486.
- Clemens S. (2006)** Toxic metal accumulation, responses to exposure and mechanisms of tolerance in plants. *Biochimie*. 88: 1707-1719.
- Cluis C. (2004)** Junk-greedy Greens: phytoremediation as a new option for soil decontamination. *Bio Teach Journal*, 2: 61-67.
- Cobbett C S. (2000)** Phytochclatins and their roles in heavy metal detoxification. *Plant Physiol.*, 123: 825-832.
- Colombano S., Saada A., Guerin V., Bataillard P., Bellenfant G., Beranger S., Hube D., Blanc C., Zornig C., Girardea I. (2010)** Quelles techniques pour quels traitements, Analyse coûts-bénéfices. Rapport Final, BRGM/RP-58609-FR. 403 p.
- Cosio C., Vollenweider P., Keller C. (2005)** Localization and effects of cadmium in leaves of a cadmium-tolerant willow (*Salix viminalis* L.). I. Macrolocalization and phytotoxic effects of cadmium. *Environ. Exp. Bot.* 58: 64-74.
- Cui S., Zhou Q., Chao L. (2007)** Potential hyperaccumulation of Pb, Zn, Cu and Cd in enduring plants distributed in an old smeltery, northeast China, *Environ. Geo.*, 51: 1043-1048.

-D-

- Dagnelie P. (1981)** Principes d'expérimentations. *Les presses agronomiques de Gembloux*, Belgique, 182p.
- Damy P C (2011)** Synthèse des connaissances sur l'origine et la disponibilité du cadmium dans les eaux continentales. ONEMA, 39p.
- Das P., Samantaray S., Rout G R. (1997)** Studies on cadmium toxicity in plants: A review. *Environmental Pollution*, 98: 29-36.
- De La Rosa G., Peralta-Videa JR., Montes M., Parsons JG., Cano-Aguilera I., Gardea-Torresdey J L. (2004)** Cadmium uptake and translocation in tumbleweed (*Salsola kali*), a potential Cd-hyperaccumulator desert plant species, *Chemosphere*, 55: 1159-1168.
- Dechamp C., Meerts P. (2003)** La phytoremediation : Panacée pour l' environnement ou menace pour la biodiversité, *Les Naturalistes belges*, 82 :135-148.
- Deneux-Mustin S., Roussel-Debet S., Mustin C., Henner P., Munier-Lamy C., Colle C., Berthelin J., Garnier-Laplace J., Leyval C. (2003)** Mobilité et transfert racinaire des éléments en traces: influence des microorganismes du sol. Technétium, Tec & Doc. Lavoisier, Paris, 233-240.
- Deportes I. (2007)** Bilan des flux de contaminants entrant sur les sols agricoles de France métropolitaine, Bilan qualitatif de la contamination par les éléments tracés métalliques et les composés tracés organiques et application quantitative pour les éléments tracés métalliques, SOGREAH, 330p.
- De Souza M P., Pilon-Smits E A H., Terry N. (2000)** The physiology and biochemistry of selenium volatilization by plants. In: Raskin I. and Ensley B D. (Eds.) Phytoremediation of toxic metals: using plants to clean-up the environment. New York, John Wiley & Sons, Inc., pp: 171-190.
- Devi S R., Prasad M N V. (2004)** Membrane lipid alterations in heavy metal exposed plants. *Heavy metal stress in plants: From molecules to ecosystems* (2nd Ed.). Prasad M N V., Springer Verlag, Berlin-Heidelberg, pp: 127-145.
- Djebali W., Zarrouk M., Brouquisse R., El Kahoui S., Limam F., Ghorbel M H., Chaibi W. (2005)** Ultrastructure and lipid alterations induced by cadmium in tomato (*Lycopersicon esculentum*) chloroplast membranes, *Plant Biol.*, 7: 358-368
- Dong J., Wu Fei-bo., Zhang G. (2006)** Influence of cadmium on antioxidant capacity and four microelement concentrations in tomato seedlings (*Lycopersicon esculentum*), *Chemosphere*, 64: 1659-1666.
- Dreier W., Goring M. (1974)** Der Einfluss hoher Salzkonzentration auf verschiedene physiologische Parameters von Maiswurzeln. *Wiss. Z. Humboldt Univ. Berlin, Reihe/Math. Naturwiss.*, 23: 641-644.

-E-

- El Aich, A. (1987)** Fodder trees and Shrubs in range and farming systems in North Africa. Food and Agricultural (FAO) report. Rome.
- Environmental Protection Agency (EPA) (2012)** A citizen's guide to phytoremediation, 2p (EPA 542-F-12-016)
- Eun S O., Youn H S., Lee Y. (2000)** Lead disturbs microtubule organization in the root meristem of *Zea mays*, *Physiol. Plant*, 110: 357-365.
- Ernest W., Verkleij J., Shat H. (1992)** Metal tolerance in plants. *Acta Bot. Neerl.*, 41: 229-248.
- Ezzahiri A., El Maghraoui A., El Abassi M. (1986)** Comportement des *Atriplex* en zone aride, 11p.

-F-

- Falasca S L., Pizarro M J., Mezher R N. (2013)** The agro-ecological suitability of *Atriplex nummularia* and *A. halimus* for biomass production in Argentine saline drylands. *Int J Biometeorol*, 58(7):1433-1441.
- Falcy M., Jargot D., La Rocca B., Pillière F., Robert S., Serre P. (2013)** Cadmium et ses composés minéraux. INRS, 17p.
- Forget D. (2004)** réhabilitation des sols, In : ETS. Ecole de technologie supérieure. https://cours.etsmtl.ca/ctn626/innov_fiche_cemrs_200409b_fr.pdf.
- Francllet A., Le Houérou H N. (1971)** Les *Atriplex* en Afrique du nord. Edition FAO. Rome, 271p.

-G-

- Garbisu C., Alkorta I. (2001)** Phytoextraction: a cost-effective plant-based technology for the removal of metals from the environment. *Bioresource Technology*, 77: 229-236.
- Ghnaya T., Slama I., Messedi D., Grignon C., Ghorbel M H., Chedly Abdelly C. (2007a)** Effects of Cd^{2+} on K^+ , Ca^{2+} and N uptake in two halophytes *Sesuvium portulacastrum* and *Mesembryanthemum crystallinum*: Consequences on growth, *Chemosphere*, 67: 72-79.
- Ghnaya T., Slama I., Messedi D., Grignon C., Ghorbal M H., Abdelly C. (2007b)** Cd^{2+} induced growth reduction in the halophyte *Sesuvium portulacastrum* is significantly improved by NaCl, *J. Plant Res.*, 120: 309-312.
- Ghosh M., Singh S P. (2005)** A review on phytoremediation of heavy metals and utilization of its byproducts. *Applied Ecology and Environmental Research*, 3(1): 1-18.

- Gomes M P., Marques T C., Soares A M. (2013)** Cadmium effects on mineral nutrition of the Cd-hyperaccumulator *Pfaffia glomerata*, *Biologia* 68(2): 223-230.
- Gratão P L., Prasad M N V., Cardoso P F., Lea P J., Azevedo R A. (2005)** Phytoremediatio: green technology for the cleanup of toxic metals in the environment, *Braz. J. Plant Physiol.*, 17(1): 53-64.
- Gu J., Qi L., Jiang W., Liu d. (2007)** Cadmium accumulation and its effects on growth and gas exchange in four *populus* cultivars, *Acta Biologica Cracoviensia Series Botanica*, 49 (2): 7–14.
- Guo T R., Zhang G P., Zhou M X., Wu F B., Chen J X. (2007)** Influence of aluminum and cadmium stresses on mineral nutrition and root exudates in two barley cultivars. *Pedosphere*, 17: 505-512.

-H-

- Haghiri F. (1974)** Plant uptake of cadmium as influenced by cation exchange capacity, organic matter, zinc and soil temperature. *J Env Qual*, 3: 180-183.
- Hazrat A., Naseer M., Sajad M A. (2012)** Phytoremediation of heavy metals by *Trifolium alexandrinum*, *International Journal Of Environmental Sciences*, 2(3):1459-1469.
- Hazrat A., Khan E., Sajad M A. (2013)** Phytoremediation of heavy metals: Concepts and applications, *Chemosphere*, 91: 869-881.
- Henry J R. (2000)** An overview of the phytoremediation of lead and mercury. National Network of Environmental Management Studies (NNEMS) Fellow, 51p.
- Hettiarachchi G M., Nelson N O., Agudelo-Arbelaez S C., Mulisa Y A, Lemunyon J L. (2012)** Phytoremediation: Protecting the Environment with Plants, U.S. Department of Agriculture (USDA), Kansas State University, 8p.
- He Z L., Yang X E., Stoffella P J. (2005)** Trace elements in agroecosystems and impacts on the environment. *J Trace Elem Med Biol.*, 19: 125- 140.
- Hoagland D R., Arnon D I. (1938)** The water culture method for growing plants without soil. *California Agricultural Experiment Station Circular*, University of California, Berkley, California, 347: 1-32.
- Hu P J., Qiu R L., Senthilkumar P., Jiang D., Chen Z W., Tang Y T., Liu F J. (2009)** Tolerance, accumulation and distribution of zinc and cadmium in hyperaccumulator *Potentilla griffithii*. *Environmental and Experimental Botany* 66: 317–325.
- Hyder S Z (1981)** Preliminary observations on the performances of some exotic species of *Atriplex* in Saudi Arabia. *Journal Range Management*, 34: 208-210.

-I-

Interstate Technology & Regulatory Cooperation Work Group (ITRC) (2001). Phytotechnology Technical and Regulatory Guidance Document. Washington, D C, 124p.

-J-

Jamil S., Abhilash P C., Singh N., Sharma P N. (2009) *Jatropha curcas*: a potential crop for phytoremediation of coal fly ash. *J. Hazard. Mater.*, 172, 269–275.

Jemal F., Ghorbal M H. (2002) Phytoremediation, *revue H.T.E*, N° 122, 12p.

John P., Ahmad P., K. Gadgila K., Sharma S. (2009) Heavy metal toxicity: Effect on plant growth, biochemical parameters and metal accumulation by *Brassica juncea* L. *Int. J. Plant Prod.*, 3(3): 65-76.

Jones R. (1970) The biology of *Atriplex*. Division of Plant Industry, Commonwealth Scientific and Industrial Research Organization, Camberra (Australia). 128p.

Juste C., Chassin P., Gomez A., Linères M., Mocquot B. (1995) Les micro-polluants métalliques dans les boues résiduaires des stations d'épurations. *Angers, Ademe*, 209 p.

-K-

Kaznina N M., Titov A F. (2014) The Influence of Cadmium on Physiological Processes and Productivity of *Poaceae* Plants, *Biology Bulletin Reviews*, 4(4): 335-348.

Khan M I R., Nazir F., Asgher M., Per T S., Khan N A. (2015) Selenium and sulfur influence ethylene formation and alleviate cadmium-induced oxidative stress by improving proline and glutathione production in wheat, *J. Plant Physiol.*, 173: 9–18.

Kim D Y., Bovet L., Maeshima M., Martinoia E., Lee Y. (2007) The ABC transporter AtPDR8 is a cadmium extrusion pump conferring heavy metal resistance. *Plant J.*, 50: 207-218.

Kinet J M., Bajji M. (1998) Salt stress effects on roots and leaves of *Atriplex halimus* and their corresponding callus cultivates, Eds. ELSCVIER Louvain, pp: 132-142.

Kranner I., Colville L. (2011) Metals and seeds: biochemical and molecular implications and their significance for seed germination. *Environ. Exp. Bot.*, 72: 93–105.

Kumar P B A N, Dushenkov V., Motto H., Raskin I. (1995) Phytoremediation: the use of plant to remove heavy metals from soil, *Environ. Sci. Technol.*, 29: 1232-1238.

Kvesitadze G., Khatisashvili G., Sadunishvili T., Ramsden J J. (2006) The ecological importance of plants for contaminated environments, In: Kvesitadze G (Ed.), *Biochemical mechanisms of detoxification in higher plants: Basis of phytoremediation*, Berlin, Springer, pp: 167-208.

-L-

- Ladislav S., El-Mufleh A., Gerente C., Chazarenc F., Andres Y., Bechet B. (2012)** Potential of aquatic macrophytes as bioindicators of heavy metal pollution in urban storm water runoff. *Water Air Soil Pollut.*, 223: 877-888.
- Lafuente A L., González C, Quintana J R., Vázquez A., Romero A. (2008)** Mobility of heavy metals in poorly developed carbonate soils in the Mediterranean region. *Geoderma*, 145: 238-244.
- Larbi A., Morales F., Abadía A., Gogorcena R., Lucena J., Abadía J. (2002)** Effects of Cd and Pb in sugar beet plants grown in nutrient solution: induced Fe deficiency and growth inhibition, *Funct. Plant Biol.*, 29: 1453-1464.
- Lefèvre I., Marchal G., Meerts P., Corréal E., Lutts S. (2009)** Chloride salinity reduces cadmium accumulation by the Mediterranean halophyte species *Atriplex halimus* L. *Environ. Exper. Bot.*, 65: 142–152.
- Le Houérou H N. (1986)** Salt-tolerant plants of economic value in the Mediterranean Basin. *Reclamation and Revegetation Research*, 5: 319-341.
- Le Houérou H N. (1992)** The role of saltbushes (*Atriplex spp.*) in arid land rehabilitation in the Mediterranean basin, *Agroforestry systems*, 18: 107-148.
- Le Houérou H N. (2002)** Multipurpose germplasm of fodder shrubs and trees for the rehabilitation of arid and semi- arid land in the Mediterranean isoclimatic zone. A photographic catalogue, In: Le Houérou H N. (Ed.). Multipurpose germplasm of fodder shrubs and trees for the rehabilitation of arid and semi-arid land in the Mediterranean isoclimatic zone. A photographic catalogue. Zaragoza : CIHEAM, 2002, p : 1 -118 (Options Méditerranéennes : Série B. Etudes et Recherches; n. 37).
- Liu J., Cao C., Wong M., Zhang Z., Chai Y. (2010)** Variations between rice cultivars in iron and manganese plaque on roots and there relation with plant cadmium uptake. *J. Environ. Sci*, 22: 1067-1072.
- Liu S., Yang C., Xie W., Xia C., Fan P. (2012)** The effects of cadmium on germination and seedling growth of *Suaeda salsa*, *Procedia Environmental Sciences*, 16: 293 – 298.
- Liu Z., He X., Chen W., Yuan F., Yan K., Tao D. (2009)** Accumulation and tolerance characteristics of cadmium in a potential hyperaccumulator *Lonicera japonica* Thunb, *J. of Hazardous Materials*, 169:170–175.
- Lutts S., Lefèvre I., Delpérée C., Kivits S., Dechamps C., Robledo A., Correal E. (2004)** Heavy metal accumulation by the halophyte species Mediterranean saltbush, *J. Environ. Qual.*, 33: 1271–1279.

-M-

- Mâalem S. (2002)** Etude de l'impact des interactions entre le phosphore et le chlorure de sodium sur trois espèces végétales halophytes du genre *Atriplex* (*A. halimus*, *A. canescens* et *A. nummularia*). Thèse doc. Univer Badji Mokhtar-Annaba. Algérie, 169p.
- Maaroufi Dguimi H., Debouba M., Ghorbel M H., Gouia H. (2009)** Tissue-specific cadmium accumulation and its effects on nitrogen metabolism in tobacco (*Nicotiana tabaccum*, *Bureley v. Fb9*), *C. R. Biologies*, 332: 58-68.
- Magali S. (2007)** Spéciation du cadmium, du plomb et du zinc dans les poussières d'émissions atmosphériques d'origine sidérurgique. Approche de l'impact toxicologique des poussières. Thèse doc Univer. Paul CEZANNE AIX-MARSEILLE III. 262p.
- Malan P J., Rethman N F G. (1997)** The use of stem cuttings to propagate *Atriplex nummularia* L. (Oldman saltbush) vegetatively, *South Afr. J. Agri. Dev.*, 21: 30-57.
- Marmiroli N., Marmiroli M., Maestri E. (2006)** Phytoremediation and phytotechnologies: a review for the present and the future soil and water pollution monitoring, protection and remediation, *Nato Science Series*, 69: 403-416.
- Márquez-García B., Márquez C, Sanjosé I., Nieva F J J., Rodríguez-Rubio P., Munoz-Rodriguez A f. (2013)** The effects of heavy metals on germination and seedling characteristics in two halophyte species in Mediterranean marshes, *Marine Pollution Bulletin*, 70: 119–124.
- Marschner H. (1995)** Mineral nutrition of higher plants, 2nd ed, London, Academic Press, 889p.
- Martin-Garin A., Simon O. (2004)** Cadmium 109 et environnement. Fiche Radionucléide. IRSN. 14p.
- McCutcheon S C., Schnoor J L. (2003)** *Phytoremediation: Transformation and Control of Contaminants*, John Wiley, Hoboken, NJ, USA, 1024p.
- McBride M B. (2004)** Molybdenum, sulfur, and other trace elements in farm soils and forages after sewage sludge application, *Commun Soil Sci. Plant Anal.*, 35 (4): 517-535.
- McGrath S P., Zhao F J., Lombi E. (2002)** Phytoremediation of metals, metalloids and radionuclides. *Adv. Agron.*, 75: 1-56.
- McKell C M. (1975)** Shrubs: a neglected resources of arid lands, *Science*, 187: 803-809.
- Meagher R B. (2000)** Phytoremediation of toxic elemental and organic pollutants. *Curr. Opin. Plant. Biol.*, 3: 153-62.

- Mediouni C., Ben Ammar W., Houlné G., Chabouté M E., Jemal F. (2009)** Cadmium and copper induction of oxidative stress and antioxydative response in tomato (*Solanum lycopersicon*) leaves, *Plant Growth Regul.*, 57: 89-99.
- Meharg A A., Macnair M R. (1992)** Genetic correlation between arsenate tolerance and the rate influx of arsenate and phosphate in *Holcus lamatus*. *Heredity*, 69: 336-341.
- Metwally A., Safronova VI, Belimov A A., Dietz K J. (2005)** Genotypic variation of the response to cadmium toxicity in *Pisum sativum* L. *J. Exp. Bot.*, 56: 167-178.
- Migeon A., Blaudez D., Guinet F., Chalot M., Botton B. (2011)** Accumulation des métaux lourds chez le Peuplier: Localisation tissulaire et expression de quelques transporteurs, *Algerian journal of Arid Environment*, 9(1): 3-9.
- Mishra B., Sangwan R S., Mishra S., Jadaun J S., Sabir F., Sangwan N S. (2014)** Effect of cadmium stress on inductive enzymatic and nonenzymatic responses of ROS and sugar metabolism in multiple shoot cultures of Ashwagandha (*Withania somnifera* Dunal), *Protoplasma*, 251:1031-1045.
- Mishra M K, Prakash V. (2010)** Response of non-enzymatic antioxidants to zinc induced stress at different pH in *Glycine max* L. cv. Merrill., *Acad. J. Plant Sci.* 1:1-10.
- Mittler R. (2002)** Oxidative stress, antioxidants and stress tolerance, *Trends in Plant Science*, 7(9): 405-410.
- Mnasri M., Ghabriche R., Fourati E., Zaier H., Sabally K., Barrington S., Lutts S., Abdelly C., Ghnaya T. (2015)** Cd and Ni transport and accumulation in the halophyte *Sesuvium portulacastrum*: implication of organic acids in these processes, *Frontiers in Plant Science*, 6 (156): 1-9.
- Moosavi S E., Gharineh M H., Afshari R T., Ebrahimi A. (2012)** Effects of some heavy metals on seed germination characteristics of canola (*Barassica napus*), wheat (*Triticum aestivum*) and safflower (*Carthamus tinctorious*) to evaluate phytoremediation potential of these crops, *J. Agric. Sci.* 4: 1-19.
- Moradi L., Ehsanzadeh P. (2015)** Effects of Cd on photosynthesis and growth of safflower (*Carthamus tinctorius* L.) genotypes, *Photosynthetica*, 53 (4): 506-518.
- Morel J L. (2010)** Stratégies de remédiation in situ des sols pollués: la phytoremédiation, laboratoire Sols et Environnement UMR 1120 INPL- INRA, 5p.
- Moreno J L., Hernandez T., Garcia C. (1999)** Effects of a cadmium containing sewage sludge compost on dynamics of organic matter and microbial activity in an arid soils. *Biol. Fert. Soils*, 28: 230-237.

Mortvedt J J., Beaton J D. (1995) Heavy metal and radionuclide contaminants in phosphate fertilizers. In: Tiessen H, Editor. Phosphorus in the global environment: transfer, cycles and management. New York: Wiley 93-106.

Moussavou Moudouma C F. (2010) Etude des mécanismes d'accumulation du cadmium chez *Arabidopsis thaliana* (écotype *Wassilewskija*) et chez un mélèze hybride (*Larix x eurolepis*) par des approches moléculaire et développementale. Thèse doc. Univ. de Limoges, 223p.

Mulas M., Mulas G. (2004) Potentialités d'utilisation stratégique des plantes des genres *Atriplex* et *Opuntia* dans la lutte contre la désertification. Université de Sassari. Short and Medium Term Priority Environmental Action Programme (SMAP). 112 p.

-N-

Nedjimi B. (2009) Le calcium peut-il protéger *Atriplex halimus* subsp. *schweinfurthii* contre la toxicité du cadmium ?, *Acta Botanica Gallica: Botany Letters*, 156 (3) : 391-397.

Nedjimi B. (2012) *Atriplex halimus* subsp. *Schweinfurthii* (Chenopodiaceae): A native species in salt steppe of Algeria. A review. In: Marin L. et Kovac D. (Eds.) Native species: Identification, Conservation and Restoration. Nova Science Publishers, Inc. NY, pp: 1-9.

Nedjimi B. (2013) Proline: Biosynthèse, Régulation and Health benefits. *Nova Science Publishers*, Inc. NY, 169p.

Nedjimi B., Daoud Y. (2009a) Effects of calcium chloride on growth, membrane permeability and root hydraulic conductivity in two *Atriplex* species grown at high (sodium chloride) salinity, *J. Plant Nutr.*, 32: 1818-1830.

Nedjimi B., Daoud Y. (2009b) Cadmium accumulation in *Atriplex halimus* subsp. *schweinfurthii* and its influence on growth, proline, root hydraulic conductivity and nutrient uptake, *Flora*. 204: 316-324.

Nedjimi B., Mohammed N., Belkheiri S. (2014) Germination responses of medic tree (*Medicago arborea* L.) seeds to salinity and temperature, *Agri. Res.*, 3(4): 308-312.

Newman L A., Reynolds C M. (2004) Phytodegradation of organic compounds. *Curr. Opin. in Biotech.*, 15: 225-230.

Nouairi I., Ben Ammar W., Ben Youssef N., Daoud D B., Ghorbal M H. Zarrouk M. (2006) Comparative study of cadmium effects on membrane lipid composition of *Brassica juncea* and *Brassica napus* leaves. *Plant Sci.*, 170: 511-519.

-O-

Ouariti O., Gouia H., Ghorbel M H. (1997) Responses of bean and tomato plants to cadmium: growth, mineral nutrition and nitrate reduction. *Plant Physiol. Biochem.*, 35: 347-354.

Ould Rabah N. (2012) Essai de phytoremédiation des sols contaminés par les hydrocarbures. Mémoire magister. Université Mouloud Mammeri. Tizi-Ouzou. Algérie, 115p.

-P-

Padmavathiamma P K., Li L Y. (2007) Phytoremediation technology: hyperaccumulation metals in plants. *Water Air Soil Pollut.*, 184:105-126.

Panda S K., Khan M H. (2004) Changes in growth and superoxide dismutase activity in *Hydrilla verticillata* L. under abiotic stress, *Braz. J. Plant Physiol.*, 16(2): 115-118.

Par-Smith G A. (1982) Biogeography and evaluation of the shrubby Australian species of *Atriplex*. In: W.R. Barker and P.J. Greensdale (Eds.) *Evolution of the Flora and Fauna of Arid Australia*. Peacock, Freville, S. Australia, 221-299.

Pich., Scholtz G (1996) Translocation of copper and other nutrients in tomato plants (*Lycopersicon esculentum* Mill) nicotianamine stimulated copper transport in the xylem, *J. Exp. Bot.*, 47: 41-47.

Pilon-Smith E. (2005) Phytoremediation. *Annual review of plant biology*. 56: 15-39.

Pinto A P., De Varennes A., Fonseca R., Teixeira M. (2015) Phytoremediation of Soils Contaminated with Heavy Metals: Techniques and Strategies, In: *Phytoremediation Management of Environmental Contaminants*, Volume 1, Eds, Ansari A et al.,133-155.

Pokorny B., Al Sayegh-Petkovsek S., Ribaric- Lasnik C., Vrtacnik J., Doganoc D Z., Adamic M. (2004) Fungi ingestion as an important factor influencing heavy metal intake in roe deer: evidence from faeces, *Sci. Total Environ.*, 324: 223-234.

Poschenrieder C., Gunse B., Barcelo J. (1989) Influence of cadmium on water relations, stomatal resistance, and abscisic acid content in expanding bean leaves, *Plant Physiol.*, 90:1365-1371.

Prasad M N V. (2004) Phytoremediation of metals in the environment for sustainable development. *Proc. Indian natn. Sci. Acad*, 70 (1): 71-98.

Prasad M N V., Freitas H M O. (2003) Metal hyperaccumulation in plants - Biodiversity prospecting for phytoremediation technology, *Electronic Journal of Biotechnology*, 6(3): 285- 321.

-R-

- Rahmoune C., Maâlem S., Bennaceur M. (2004)** Etude comparative de rendement en matière sèche et en matière azotée totale de trois espèces de plantes steppiques du genre *Atriplex*. In : Cantero-Martínez C. (ed.), Gabiña D. (ed.). *Mediterranean rainfed agriculture: Strategies for sustainability*. Zaragoza : CIHEAM (Options Méditerranéennes: Série A. Séminaires Méditerranéens; n. 60) 219-221.
- Rascio N., Dalla Vecchia F., La Rocca N., Barbato R., Pagliano C., Raviolo M., Gonnelli C., Gabbrielli R. (2008)** Metal accumulation and damage in rice (cv. Vialone nano) seedlings exposed to cadmium. *Environmental and Experimental Botany*, 62: 267-278.
- Raskin I., Ensley B D. (2000)** Phytoremediation of toxic metals: Using plants to clean up the environment, John Wiley & Sons, Inc., New York, pp: 53-70.
- Remon E. (2006)** Tolérance et accumulation des métaux lourds par la végétation spontanée des friches métallurgiques : vers de nouvelles méthodes de bio-dépollution, Thèse Doct., Univer. Jean Monnet - Saint-Etienne, France, 167p.
- Repellini F. (2000)** La phytoremédiation des sols pollués par les métaux. Rapport de recherche bibliographique. ENSSIB. DESS Ingénierie Documentaire. Ecole Nationale Supérieure des Sciences de l'Information et des Bibliothèques, 25p.
- Riffat N M., Syed Z H., Ishfaq N. (2010)** Heavy metal contamination and accumulation in soil and wild plant species from industrial area of Islamabad, *Pak. J. Bot.*, 42(1): 291-301.
- Robinson B., Schulin R., Nowack B., Roulier S., Menon M., Clothier B., Green S., Mills T. (2006)** Phytoremediation for the management of metal flux in contaminated sites, *For. Snow Landsc. Res.*, 80 (2): 221–234.
- Robert M. (1996)** Différents types de transfert du sol vers les hydrosystèmes : dissous ou particulaire, latéral ou vertical. Chapitre 1. In : Le Coz C., Tassin B., Thévenot D. (Ed.), *Transfert des polluants dans les hydrosystèmes*, Paris, Presses de l'école nationale des Ponts et chaussées, pp : 13-14.
- Roy S., Khasa D P., Greer C W. (2007)** Combining alders, frankiae and mycorrhizae for the revegetation and remediation of contaminated ecosystems, *Canadian Journal of Botany*, 85(3): 237-251.
- Rudolph J. (2010)** La reconversion de friches industrielles et la dépollution des sols contaminés. La phytoremédiation une technique «écologique» alternative aux techniques conventionnelles? Mémoire de fin de formation. Ecole Nationale Supérieure d'Architecture de Lyon, 32p.
- Rulkens W H., Tichy R., Grotenhuis J T C. (1998)** Remediation of polluted soil and sediment: perspectives and failures, *Water Sci. Technol.*, 37: 27-35.

-S-

- Saadani Y. (1988)** Production fourragère et comportement alimentaire des ovins et des caprins dans un parcours mixte à *Acacia cyanophylla*, *Atriplex nummularia* et *Medicago arborea*, Mém. 3^{ème} cycle, Agron. I.A.V. Hassan II. Rabat, Maroc, 123p.
- Sai Kachout S., Ban Mansoura A., Leclere J C., Jaffel K., Rejeb M N., Ourghi Z. (2009)** Effects of heavy metals on antioxidant activities of *Atriplex hortensis* and *Atriplex rosea*, *J. Applied. Bot. Food Qual.*, 83:37-43.
- Salt D E., Prince R C., Pickering I J., Raskin I. (1995)** Mechanisms of cadmium mobility and accumulation in indian mustard. *Plant Physiol.*, 109: 1427-1433.
- Salt D E., Pickering I J., Prince R C., Gleba D., Dushenkov S., Smith R D., Raskin I. (1997)** Metal accumulation by aquacultured seedlings of Indian Mustard, *Environ. Sci. Technol.* 31(6): 1636-1644.
- Salt D E., Smith R D., Raskin I. (1998)** Phytoremediation. *Annual Review of Plant Physiology and Plant Molecular Biology*, 49: 643-668.
- Salt D E., Kato N., Krämer U., Smith R D., Raskin I. (2000)** The role of root exudates in nickel hyperaccumulation and tolerance in accumulator and non-accumulator species of *Thlaspi*. In: Terry N, Banuelos G, eds. Phytoremediation of contaminated soil and water. CRC Press LLC, 189-200.
- Sandalio L M., Dalurzo H C., Gomes M., Romero-Puertas M C., Del Rio L A. (2001)** Cadmium-induced changes in the growth and oxidative metabolism of pea plants, *J. Exp. Bot.*, 52: 2115-2126.
- Sanita di Toppi L., Gabbrielli R. (1999)** Response to cadmium in higher plants. *Environmental and Experimental Botany*. 41: 105-130.
- Sanita Di Toppi L., Lambardi M., Pazzagli L., Cappugi G., Durante M., Gabrielli R. (1999)** Response to cadmium in carrot in vitro plants and cell suspension cultures, *Plant Sci.*, 137 : 119- 129.
- Sarwat I. (2012)** Phytoremediation: a green technology. *Iranian Journal of Plant Physiology*, 3 (1): 567-576.
- Sbartai H., Djebar M R., Sbartai I., Berrabbah H. (2012)** Bioaccumulation of cadmium and zinc in tomato (*Lycopersicon esculentum* L.), *C. R. Biologies*, 335: 585–593.
- Schnoor J. (2011)** Phytoremediation for the Containment and Treatment of Energetic and Propellant Material Releases on Testing and Training Ranges. SERDP Project ER-1499. Final report. University of Iowa, 152p.

- Seyedsadr S., Alipour Z T., Farasat M., Sinaki J. (2013)** Investigation of the ability of *Mentha spicata* L. for reducing cadmium in contaminated soils, *International Journal of Agronomy and Plant Production*, 4(12): 3425-3431.
- Shah K., Nongkynrih J M. (2007)** Metal hyperaccumulation and bioremediation. *Biologia Plantarum*, 51: 618-634.
- Sharma P., Dubey R S. (2005)** Lead toxicity in plants, *Braz. J. Plant Physiol.*, 17: 35-52.
- Sharmila P., Pardha S P (2002)** Proline accumulation in heavy metal stressed plants: an adaptive strategy, In: *Physiology and Biochemistry of Metal Toxicity and Tolerance in Plants*,. Prasad M N V et Strzalka K (Eds), 179-199
- Shimp J F., Tracy J C., Davis L C., Lee E., Huang W., Erickson L E., Schnoor J L. (1993)** Beneficial effects of plants in the remediation of soil and groundwater contaminated with organic materials. *Critical Reviews in Environmental Science and Technology*, 23: 41-77.
- Singh D., Tiwari A., Gupta R. (2012)** Phytoremediation of lead from wastewater using aquatic plants, *Journal of Agricultural Technology*, 8(1): 1-11. Disponible online: <http://www.ijat-aatsea.com>.
- Skrebsky T C., Tabaldi L A., Pereira L B., Rauber R., Maldaner J., Cargnelutti D., Gongalves J F., Gabriel Y. Castro G Y., Maria R.C. Shetinger M R C., and Fernando T. Nicoloso F T. (2008)** Effect of cadmium on growth, micronutrient concentration, and S-aminolevulinic acid dehydratase and acid phosphatase activities in plants of *Pfaffia glomerata*. *Braz. J. Plant Physiol.*, 20(4): 285-294.
- Stobart A K., Griffiths W T., Ameen-Bukhari I., Sherwood R P. (1985)** The effects of Cd²⁺ on the biosynthesis of chlorophyll in leaves of barley, *Plant Physiol.*, 63: 293–298.
- Sun Y., Zhou Q., Wang L., Liu W. (2009)** Cadmium tolerance and accumulation characteristics of *Bidens pilosa* L. as a potential Cd-hyperaccumulator, *Journal of Hazardous Materials*, 161: 808-814.
- Susarla S., Victor F M., McCutcheon S C. (2002)** Phytoremediation: An ecological solution to organic chemical contamination. *Ecological Engineering*, 18: 647-658.

-T-

Tapia Y., Diaz O., Pizarro C., Segura R., Vines M., Zúñiga G., E. Moreno-Jiménez E. (2013) *Atriplex atacamensis* and *Atriplex halimus* resist As contamination in Pre-Andean soils (northern Chile), *Science of the Total Environment*, 450: 188–196.

Tran T A., Popova L P. (2013) Functions and toxicity of cadmium in plants: recent advances and future prospects. *Turk J Bot.* 37: 1-13.

Troll W., Lindsley J. (1955) A photometric method for the determination of proline. *J. Boil. Chem.*, 215: 655-660.

-V-

Van der Baan A. (2008) The determination of digestibility of *Atriplex nummularia* cv. De Kock with different techniques. M. Sc. (Agric) (Animal nutrition). University of Pretoria. South Africa, 117p.

Vangronsveld J., Herzig R., Weyens N., Boulet J., Adriaensen K., Ruttens A., Thewys T., Vassilev A., Meers E., Nehnevajova E., Lelie D., Mench M. (2009) Phytoremediation of contaminated soils and groundwater: lessons from the field, *Environ. Sci. Pollut. Res.* 16 : 765-794.

Vanobberghen F. (2011) La phytoremédiation en Wallonie : Evaluation du potentiel d'assainissement des sols contaminés en métaux lourds. Memoire de fin d'études, Université Libre de Bruxelles, 91p.

Verma D P S. (1999) Osmotic stress tolerance in plants: Role of proline and sulfur metabolisms, *Molecular Responses to Cold, Drought, Heat and Salt Stress in Higher Plants*, ed. K. Shinozaki et K. Yamaguchi-Shinozaki, p. 153-168. Austin, TX: R.G. Landers.

Vichnevetskaia K D., Roy D N. (1999) Oxidative stress and antioxidative defense with emphasis on plant antioxidants. *Environmental Reviews*, 7: 31-51.

Vishnoi S R., Srivastava P N. (2008) Phytoremediation: Green for environmental clean. In *Proceedings of Taal (2007): The 12th World Lake Conference*, Jaipur pp: 1016-1021.

Vogeli-Lange R., Wagner G J. (1990) Subcellular localization of cadmium and cadmium-binding peptides in tobacco leaves. *Plant Physiol.* 92: 1086-1093.

-W-

Wang X., Liu Y., Zeng G., Chai L., Song X., Min Z., Xiao X. (2008) Subcellular distribution and chemical forms of cadmium in *Beckhamia nivea* L. *Environ. Exper. Bot.*, 62 : 389-395.

Wei S., Zhou Q., Srivastava M., Xiao H., Yang C., Zhang Q. (2009) *Kalimeris integrifolia* Turcz. ex DC.: An accumulator of Cd, *Journal of Hazardous Materials*, 162: 1571-1573.

Weng L P., Wolthoorn A., Lexmond T M., Temminghoff E J M., Van Riemsdijk W H. (2005) Understanding the effects of soil characteristics on phytotoxicity and bioavailability of nickel using speciation models. *Environ. Scie & Techno.*, 38(1): 156-162.

Wójcik M., Vangronsveld J., Tukiendorf A. (2005) Cadmium tolerance in *Thlaspi caerulescens* L. Growth parameters, metal accumulation and phytochelatin synthesis in response to cadmium, *Environ. Exper.Bot.*, 53: 151–161.

Wu F., Yang W., Zhang J., Zhou L. (2010) Cadmium accumulation and growth responses of a poplar (*Populus deltoids*×*Populus nigra*) in cadmium contaminated purple soil and alluvial soil, *Journal of Hazardous Materials*, 177: 268-273.

Wu, F., Zhang G., Dominy P. (2003) Four barley genotypes respond differently to cadmium: lipid peroxidation and activities of antioxidant capacity. *Environ. Exper. Bot.*, 50: 67-78.

-Y-

Yang H., Yanju L. (2011) Phytoremediation on Air Pollution, In: The Impact of Air Pollution on Health, Economy, Environment and Agricultural Sources, Dr. Mohamed Khallaf (Ed.), pp: 281-294.

Yang H Y., Shi G X., Xu Q S., Wang H X. (2011) Cadmium Effects on Mineral Nutrition and Stress-Related Indices in *Potamogeton crispus*, *Russian Journal of Plant Physiology.*, 58 (2):253-260.

Yoon J., Cao X., Zhou Q., Ma L Q. (2006) Accumulation of Pb, Cu, and Zn in native plants growing on a contaminated Florida site, *Sci. Total Environ.*, 368: 456-464.

-Z-

Zayed A., Gowthaman S. Terry N. (1998) Phytoaccumulation of trace elements by wetland plants: I. Duckweed, *J. Environ. Qual.*, 27: 715–721.

Zhang Z., Liu C., Wang X., Shi G. (2013) Cadmium-induced alterations in morpho-physiology of two peanut cultivars differing in cadmium accumulation, *Acta Physiol. Plant*, 35: 2105–2112.

Zoghalmi B L., Djebali W., Chaïbi W., Ghorbel M H. (2006) Modifications physiologiques et structurales induites par l'interaction cadmium–calcium chez la tomate (*Lycopersicon esculentum*), *C. R. Biologies*, 329 : 702–711.

Zorrig W., Rouached A., Shahzad Z., Abdelly C., Davidian JC., Berthomieu P. (2010) Identification of three relationships linking cadmium accumulation to cadmium tolerance and zinc and citrate accumulation in lettuce. *J Plant Physiol.* 167: 1239-1247.

Zorrig W. (2011) Recherche et caractérisation de déterminants contrôlant l'accumulation de cadmium chez la laitue *Lactuca sativa*, Thèse doc. Univer. Montpellier SupAgro, 252p.