

منابع

ارادتمنداصلی، د. و مهرپناه، ح. ۱۳۸۸. زراعت حبوبات و تثبیت نیتروژن. نشر علمی دانشگاه آزاداسلامی واحد ساوه.

ایزدی دربندی، ا.، راشد محصل، م. ح.، محمودی، ق. و دهقان، م. ۱۳۹۰. ارزیابی حساسیت گیاهان زراعی به بقایای علف کش مزوسولفورون + یدوسولفورون (توتال) در خاک. مجله حفاظت گیاهان (علوم و صنایع کشاورزی). ۲۵ (۲): ۱۹۴ تا ۲۰۲.

ایزدی دربندی، ا.، راشد محصل، م. ح.، محمودی، ق. و دهقان، م. ۱۳۹۱. ارزیابی تحمل برخی گیاهان زراعی به بقایای علف کش تری بنورون متیل (گرانستار) در خاک. مجله حفاظت گیاهان (علوم و صنایع کشاورزی). ۲۶ (۴): ۳۶۲ تا ۳۶۹.

ایزدی، ا.، م. ح. راشد محصل، ا. زند، م. نصیری محلاتی، و ا. لکزیان. ۱۳۸۷. ارزیابی تاثیر بافت و مواد آلی خاک بر تجزیه علف کش آترازین. مجله علوم محیطی. ج ۵، ش ۴، ص ۶۴-۵۳.

آمارنامه جهاد کشاورزی، ۱۳۸۸. اداره کل آمار و اطلاعات، معاونت طرح و برنامه ریزی وزارت جهاد کشاورزی، تهران.

پارسا، م.، باقری، ع. ۱۳۸۷. حبوبات. چاپ اول انتشارات جهاد دانشگاهی مشهد، مشهد.

پزشکپور، پ. و خادمی. ک. ۱۳۸۳. مدیریت زراعی و ژنتیکی برای مقاومت به خشکی در نخود. مرکز تحقیقات کشاورزی و منابع طبیعی لرستان. ۱۱: ۸۸ تا ۹۲.

پورآذر، ر.، زند، ا.، باغستانی، م. ع.، منصوری، ح. و دیهیم فرد، ر. ۱۳۸۸. بررسی واکنش برخی گیاهان کشت شده در تناوب با گندم نسبت به بقایای علف‌کش‌های سولفونیل اوره در استان خوزستان. نشریه بوم‌شناسی کشاورزی. ۲ (۱): ۳۵ تا ۲۹.

راشد محصل، م. و موسوی، س. ک. ۱۳۸۷. اصول مدیریت علف‌های هرز. چاپ اول انتشارات دانشگاه فردوسی مشهد، مشهد.

راشد محصل، م. ح.، نجفی، ح.، و اکبرزاده، م. ۱۳۸۸. بیولوژی و کنترل علف‌های هرز. انتشارات دانشگاه فردوسی مشهد.

رسولی، ر. ۱۳۹۱. تاثیر علف‌کش‌های لنتاگران، پرسوییت و ترفلان بر رشد، گره‌زایی و تثبیت نیتروژن سه رقم نخود (*Cicer arietinum* L.) پایان نامه دوره کارشناسی ارشد، دانشگاه فردوسی مشهد.

زند، ا.، باغستانی، م. ع. ۱۳۸۱. مقاومت علف‌های هرز به علف‌کش‌ها. انتشارات جهاد دانشگاهی مشهد.

زند، ا.، باغستانی، م. ع.، شیمی، پ.، نظام‌آبادی، ن.، موسوی، م. ر.، و موسوی، ک. ۱۳۹۱. راهنمای کنترل شیمیایی علف‌های هرز محصولات مهم زراعی و باغی ایران (با رویکرد کاربرد صحیح و کاهش مصرف علف‌کش‌ها. ویراست چهارم. انتشارات جهاد دانشگاهی مشهد.

زند، ا.، موسوی، ک.، و حیدری، ا. ۱۳۸۷. علف‌کش‌ها و روش‌های کاربرد آنها؛ با رویکرد بهینه‌سازی و کاهش مصرف. انتشارات جهاد دانشگاهی مشهد.

زند، ا.، موسوی، ک.، و حیدری، ا. ۱۳۹۳. علف‌کش‌ها و روش‌های کاربرد آنها؛ با رویکرد بهینه‌سازی و کاهش مصرف. انتشارات جهاد دانشگاهی مشهد.

سلیمان‌پور، ز. ۱۳۹۲. بررسی تاثیر بقایای برخی از علف‌کش‌های سولفونیل‌اوره در خاک، بر رشد، گره‌زایی و تثبیت نیتروژن در ارقام نخود (*Cicer arietinum* L.) پایان‌نامه دوره کارشناسی ارشد، دانشگاه فردوسی مشهد.

کوچکی، ع.، سرمدنیا، غ.ح. ۱۳۸۴. فیزیولوژی گیاهان زراعی. انتشارات جهاد دانشگاهی مشهد.

منصوری، ح.، زند، ا.، توکلی، م.، باغستانی، م.ع. ۱۳۹۱. بررسی تاثیر باقیمانده تعدادی از علف‌کش‌های سولفونیل‌اوره بر آفتابگردان و پنبه. مجله علوم محیطی. ۹ (۳): ۷۰-۵۹.

موسوی، س. ک.، ا. زند. و ح. صارمی. ۱۳۸۴. کارکرد فیزیولوژیک و کاربرد علف‌کش‌ها. انتشارات دانشگاه زنجان. ۲۸۶ ص.

موسوی، س. ک. ۱۳۸۸. ارزیابی کارایی برخی علف‌کش‌ها در کنترل علف‌های هرز نخود و زیست‌سنجی اثرات باقیمانده آنها در فصل بعد بر جوانه زنی و رشد رویشی گندم. مجله پژوهش‌های زراعی ایران. ۷ (۱): ۲۳۱-۲۴۱

موسوی، م.ر. ۱۳۸۷. کنترل علف‌های هرز (اصول و روش‌ها). چاپ اول مرکز نشر گهر، تهران.

موسوی، م.ر. ۱۳۹۲. علف‌کش‌ها (شناخت و کاربرد). چاپ اول انتشارات مرز دانش، تهران.

نساری، ن.، قربانی، ر.، و لشکری، ا. ۱۳۸۸. گره‌زایی، تثبیت نیتروژن و خصوصیات رشدی گیاه نخود تحت تاثیر علف‌کش متریبوزین. نشریه بوم‌شناسی کشاورزی. ۱ (۲): ۴۵ تا ۳۷.

هادی‌زاده، م. ح. ۱۳۸۷. بررسی اثر افزایش مواد آلی خاک و میزان مصرف علف‌کش سولفوسولفورون بر درجه پایداری آن و ویژگی‌های زیستی خاک در مزارع گندم. پایان‌نامه دکترا. دانشکده کشاورزی دانشگاه فردوسی مشهد.

- Alva, A. K., Assher, C. J., and Edwards, D. G. 1990. Effect of solution pH, external calcium concentration, and aluminum activity on nodulation and early growth of cowpea. *Australian Journal of Agriculture Research*. 41: 359 – 365.
- Anderson, A. 2001. The effect of acetolactate synthase (ALS) inhibiting herbicides on the growth, yield and nitrogen fixation of select legumes. Phd thesis, Adelaide University.
- Anderson, A., Baldock, J. A., Rogers, S. L., Bellotti, W., and Gill, G. 2004. Influence of chlorsulfuron on Rhizobial growth, nodulation formation, and nitrogen fixation with chickpea. *Australian Journal of Agricultural Research*. 55: 1059 - 1070.
- Azam, F., and Farooq, S. 2003. An appraisal of methods for measuring symbiotic nitrogen fixation in legumes. *Pakistan Journal of Biological Sciences*. 18: 1631 - 1640.
- Baghestani, M. A., Zand, E., Soufizadeh, S., Beheshtiand, M., Haghighie, A., Barjasteh, A., et al. 2008. Study on the efficacy of weed control in wheat (*Triticum aestivum* L.) with tank mixtures of grass herbicides with broadleaves herbicides. *Crop Protection*. 27: 104-111.
- Bazziguluppi, O., and Cepeda, S. 2005. Relations between soil moisture and the metsulfuron methyl effects on the seedling growth of soybean (*Glycine max* L. Merr). *Revista de Investigaciones Agropecuarias*. 34(1): 101-110.
- Beeler, J. E., Rhodes, G. N., Bates, G. E., Main, C. L., and Mueller, T. C. 2009. Horsenettle (*Solanum carolinense*) Control in Tall Fescue (*Festuca arundinacea*) and Clover (*Trifolium* sp.) Pastures with Mixtures of 2, 4-D and Picloram1.
- Berner, D. K. , Berggren, G. T. , Snow, J. P. 1991. Effects of glyphosate on *Calonectia crotalariae* and red crown rot of soybean. *Plant Disease* , 75: 809 - 813.
- Beyer, E. M., Brown, H. M., and Duffy, M. J. 1987. Sufonylurea herbicide soil reactions. *Proceedings of the british Crop Protection Conference-weed*.
- Blair, A. M. and T. D. Martin. 1988. A review of the activity, fate and mode of action of sulfonylurea herbicides. *Pesticide Science*. 22: 195-219.
- Blazinkov, M., Sudarevic, I., Baric, K., Sikora, S., Colo, J., and Redzepovic, S. 2010. Influence of different herbicides on growth of indigenous and reference sinorhizobium meliloti strains. *Neum Bosnia Hercegovina*. 123 -129.
- Blelnap, J. 2001. 19 Factors influencing nitrogen fixation and nitrogen release in biological soil crusts. *Ecological studies , Biological Soil Crusts: Structure, and Management*. 150: 121 – 126.
- Bradshaw, L. D., Padgett, S. R., Kimball, S. L., and Wells, B. H. 1997. Perspectives on glyphosate resistance. *Weed Technology*. 189-198.
- Brown, H. M. 1990. Mode of action, crop selectivity, and soil relations of the sulfonylurea herbicides. *Pesticide Science*. 29: 263-281.

- Brown, H.M., V. Gaddamidi, and P.W. Lee. 1998. Sulfonylureas. In *Metabolic pathways of agrochemicals, part1: Herbicides and plant growth regulators*, T.R. Roberts, The Royal Society of Chemistry Information Services.
- Buhler, D. D., Swisher, B. A., and Burnside, O. C. 1985. Behavior of ^{14}C -Haloxyp-Methyl in Intact Plants and Cell Cultures. *Weed Science*. 291-299.
- Chen, Z., W. Cheng, and B. Cheng. 1996. Bound residues of ^{14}C -chlorsulfuron in soils and their ecological efficiency. *Journal of Nanjing Agriculture University*. (in Chinese). 19 (2): 78–83.
- Clark, S. A., and Mahanty, H. K. 1991. Influence of Herbicides On Growth and nodulation of with clover, *Trifolium repense*. *Soil Biof. Biochem.* 2: 725-730.
- Colquhoun, J. 2006. Herbicides and persistence carryover. *A3*. 819 ,1-11.
- Corp, M., Machado, S., Ball, D., Smiley, R., Petrie, S., Siemens, M. and Guy, S. 2004. Chick pea production guide. Extension service. Oregon state university.
- Datta, A., Sindel, B. M., Kristiansen, P., Jessop, R. S. and Felton, W. L. 2009. Effect of isoxaflutole on the growth, nodulation and nitrogen fixation of chickpea (*Cicer arietinum* L.). *Crop Protection*. 923 – 927.
- Delye, C. 2005. Weed resistance to acetyl coenzyme A carboxylase inhibitors: an update. *Weed Science*. 53(5), 728-746.
- Diao, J., Xu, P., Wang, P., Lu, Y., Lu, D., and Zhou, Z. 2010. Environmental behavior of the chiral aryloxyphenoxypropionate herbicide diclofop-methyl and diclofop: enantiomerization and enantioselective degradation in soil. *Environmental Science and Technology*. 44(6): 2042-2047.
- Dos Santos, J. B., Ferreira, E. A., Kasuya, M. C. M., Da Silva, A. A., de Oliveira Procopio, S. 2005. Tolerance of Bradyrhizobium strains to glyphosate formulations. *Crop Protection*. 24: 543 -547
- Drew, E., Vadakattua, G., and Lawrence, I. 2006. Herbicide limit nitrogen fixation ability farming ahead, *Cropping Pulses*. 28-30.
- Durgesha, M., and Lakshminarasimhan, A. V. 1989. The effects of fluchloralin on the growth and nodulation of peanut plants. *Pesticides*. 23: 24 -27.
- Durgesha, M. 1994. Effect of dinitroaniline herbicides on rhizobia, nodulation and N_2 (C_2H_2) fixation of 4 groundnut cultivars. *Annals of Applied Biology*, 124:75 - 82.
- Eberbach, P. L., and Douglas, L. A. 1989. Herbicide effects on the growth and nodulation potential of rhizobium trifoli with *Trifolium subterraneum*. *plant and soil*. 119: 15 - 23.
- FAO (Food and Agriculture Organization of the United Nations). 2011. Tapes about statistics of food crops. Rome, Italy: Food and Agriculture Organization.

- FAO (Food and Agriculture Organization of the United Nations). 2013. Tapes about statistics of food crops. Rome, Italy: Food and Agriculture Organization.
- Farquharson, R. L. 2009. The impact of acetohydroxyacid synthase inhibiting herbicides on symbiotic nitrogen fixation of grain and pasture legumes. Ph.D Thesis, Adelaide University.
- Forlani, G., Mantelli, M., Branzoni, M., Nielsen, E., and Favilli, F. 1995. Differential sensitivity of plant-associated bacteria to sulfonylurea and imidazolinone herbicides. *Plant and Soil*. 176: 243-153.
- Fox, J. E., Gullledge, J., Engelhaupt, E., Burow, M. E., and McLachlan, J. A. 2007. Pesticides reduce symbiotic efficiency of nitrogen-fixing rhizobia and host plants. *Plant National Academy of Sciences of the USA (PNAS)*. 104: 10282 – 10287.
- García-Baudín, J.M., J.L. Alonso-Prados, E. Hernandez-Sevillano, S. Llanos, and M. Villarroya. 2002. Effects of sulfosulfuron soil residues on barley (*Hordeum vulgare*), sunflower (*Helianthus annuus*) and common vetch (*Vicia sativa*). *Crop Prot.* 21: 1061–1066.
- Gillett, D. L., and Holloway, R. E. 1996 a. The effects of sulphonylurea herbicide on annual medic in alkaline soil farming systems developments. *volum, 77 -78. Adelaide*
- Global agricultural information network. 2013. Report of assessments of commodity and trade issues made by usda.
- Gonzalez, A., Gonzalez-Murua, C., and Royuela, M. 1996. Influence of imazathapyr on rhizobium growth and its symbiosis with pea (*Pisum sativum* L.). *Weed Science*. 44: 31 - 37.
- Gonzalez-sama, A., Lucas, M. M., Defelipe, M., and Pueyo, j. j. 2004. An unusual mechanism and nodule morphogenesis in white lupin (*Lupinus albus* L.). *New Phytologist*. 163: 371 - 380.
- Green, J. M. and H. J. Streck. 2001. Influence of weather on the performance of acetolactate synthase inhibiting herbicides. *Brighton Crop Protection Conference Weeds*. 505– 512.
- Gronwald, J. W. 1991. Lipid biosynthesis inhibitors. *Weed Science*. 435-449.
- Guo Z, Huang F and Xu Z,. 2008. Residue dynamics of 10% fenoxaprop-Pethyl + cyhalofop-butyl EC in rice. *Journal of Ecological Rural Environment*. 24: 51–54.
- Hager, A. and D. Refsell. 2008. Herbicide Persistence and how to test for residues in soils. *Illinois Agricultural Pest Management Hand Book*. Chapter 13. 279- 286.
- Hager, A.G., and Nordby, D. 2007. Herbicide persistence and how to test for residual in soils. *illinoise agricultural pest management handbook*.
- Hall, F.R., Chapple, A. C., Downer, R.A., Kirchner, L. M., and Thacker, J. R. M. 1993. Pesticide application as affected by spray modifiers. *Pesticide Science*. 38: 123-133.

- Han S, Ahn B and Moon Y,. 1998. Adsorption and movement of fenoxaprop-P-ethyl in soils. *Korean Journal of Weed Science*. 18: 325–332.
- Helling, C. S. (2007). Environmental fate of herbicides in Hawaii, Peru and Panama. In Environmental behaviour of crop protection chemicals. Proceedings of an international symposium
- Helling, C. S., and van Acker, R. C. 2005. The science of soil residual herbicides. In Canadian Weed Science Society-Societe canadienne de malherbologie meeting symposium: Soil residual herbicides: Science and management, Winnipeg, Canada, November 2004. (pp. 3-22). *Canadian Weed Science Society*.
- Hollaway, K. L., R. S. Kookana, D. J. Mcquinn, M. R. Moerkerk, D. M. Noy, and M. A. Smal. 1999. Comparison of sulfonylurea herbicide residue detection in soil by bioassay, enzyme-linked immunosorbent assay and HPLC. *Weed Research*. 39:383-397.
- Iswaran,V., and Marwah, T. S. 1980. Amodified rapid Kjeldahl method for determination of total nitrogen in agriculture and biological materials. *Geobios*. 7: 281 - 282.
- Jukanti, A. K., Gaur, P. M., Gowda, C. L. L. , and Chibbar, R. N. 2012. Nutritional quality and health benefits of chickpea (*Cicer arietinum* L.): a review. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).
- King, C. A., Purcell, L.C.,and Vories, E. D.2001. Plant growth and nitrogenase activity of glyphosate-tolerant soybean in response to foliar glyphosate applications. *Agronomy Journal*. 93: 179 - 186.
- Kirchner, M. J., A. G. Wollum, and L. D. King. 1993. Soil microbial populations and activities in reduced chemical input agro-ecosystems. *Soil Science American Journal*. 57: 1007–1012.
- Kishinevsky, B. , lobel, R. , Lifshitz, N. , and Gurfel, D. 1988. Effects of some commercial herbicides on rhizobia and their symbiosis with peanuts. *Weed Research*, 28: 291 – 296.
- Knezevic, S. Z., Streibig, J. C., & Ritz, C. 2009. Utilizing R software package for dose-response studies: the concept and data analysis.
- Kotoula-Syka, E., I.G. Eleftherohorinos, A. Gagianas, and A.G. Sficas. 1993. Phytotoxicity and persistence of chlorsulfuron, metsulfuronmethyl, triasulfuron and tribenuron-methyl in three soils. *Weed Research*. 33: 355–367.
- Kudsk, P., 2008. Optimising herbicide dose: a straight forward approach to reduce the risk of side effects of herbicides. *Environmentalist*. 28: 49-55.
- Kuk, Y. I., Burgos, N. R., and Talbert, R. E. 2009. Cross-and multiple resistance of diclofop-resistant *Lolium spp*.
- Lavy, T. L., and Santelmann, P. W. 1986. Herbicide bioassay as a research tool. *Research Methods in Weed Science*. 201-218.

- Loux, M. M., and Reese, K. D. 1993. Effect of soil type and pH on persistence and carryover of imidazolinone herbicides. *Weed Technology*, 7: 452 - 458.
- Malkones, H. P. 2000. Comparasion of the effects of differently formulated herbicides on soil microbial activities—a review. *Journal of Plant Disease Protection*. 8: 781 -789.
- Mallory-Smith, C.A. and E.J. Retzinger. 2003. Revised classification of herbicides by site of action for weed resistance management strategies¹. *Weed Technology*. 17: 605-619.
- Martensson, A. M. 1992. Effects of agrochemicals and heavy metal on fast-growing rhizobia and their symbiosis with small-seeded legumes. *Soil Biology and Biochemistry*. 24: 435 - 445.
- Mckay, I., and D. Jordjevic, M. 1993. Production and excretion of nod metabolites by *Rhizobium leguminosarum* bv.trifoli are disrupted by the same environmental factors that reduce nodulation in the field. *Applied Environmental Microbiology*. 59: 3385 - 3392.
- Mersie, W. and C.L. Foy. 1985. Phytotoxicity and adsorption of chlorsulfuron as affected by soil properties. *Weed Sci*. 33: 564–568.
- Milliman, L.D., D.E. Riechers, L.M. Wax, and F.W. Simmons. 2002. Characterization of two biotypes of imidazolinone-resistant eastern black nightshade. *Weed Science*. 51:139–144.
- Milosevic, N. A., and Govedarica, M. M. 2002. Effect of herbicides on microbiological properties of soil. *Proceedings for Natural Sciences*. Matica Srpska. 1: 632 -954.
- Mohammadi, K. H., Sohrabi, Y., Heidari, G. H., Khalesro, S.H., and Majidi, M. 2012. Review Effective factors on biological nitrogen fixation. *African Journal of Agricultural Research*, 12: 1782 - 1788.
- Monaco, T.J., S.C. Weller, and F.M. Ashton. 2002. *Weed Science: Principles and Practices*. John Wiley and Sons, New York.
- Moorman, T. B., 1986. Effects of herbicides on the survival of *Rhizobium japonicum* strains. *Weed Science*. 34: 628 - 633.
- Moorman, T. B., Becerril, J. M., Lydon, J., and Duke, S. O. 1992. Production of hydroxybenzoic acids by Bradyrhizobium japonicum strains after treatment with glyphosate. *Journal Agriculture Food Chemistry*. 40: 289 - 293.
- Moyer, J. R., R. Esau, and G. C. Kozub. 1990. Chlorsulfuron persistence and response of nine rotational crops in alkaline soils of Southern Alberta. *Weed Technology*. 4: 543–548.
- Nicholls, P.H. and A.A. Evans. 1998. The behaviour of chlorsulfuron and metsulfuron in soils in relation to incidents of injury to sugar beet. *Proc. Brighton Crop Protection Confrence Weeds*. 549–556.

- Niina, K. 2008. Influence of residual flucarbazone-sodium on inoculation success measured by growth parameters, nitrogen fixation, and nodule occupancy of field pea. MSc thesis, University of Saskatchewan.
- Padovani, L., Trevian, M., and Capri, E. 2004. A calculation procedure to assess potential environmental risk of pesticides at the farm level. *Ecological Indicator*. 4: 111-123.
- Peyvastegan, A., and Farahbakhsh, A. (2011). The residual effects of different doses of Atrazine, Alachlor and Foramsulfuron on the growth and physiology of rape seed (*Brassica napus* L.). *World Academy of Science, Engineering and Technology*. 5: 02-20.
- Pons, N. and E. Barriuso. 1998. Fate of metsulfuron-methyl in soils in relation to pedo-climatic conditions. *Pesticide Science*. 53: 311–323.
- Poonam Sharma, j., and Khanna, K. 2011. In Vitro Sensitivity of Rhizobium and Phosphate Solubilising Bacteria to Herbicides. *Indian Journal of Microbiology*. 51: 230 -233.
- Postgate, J. R. 1982. The fundamentals of nitrogen fixation. Cambridge University Press, Cambridge.
- Powley, C.R. 2003. Sulfonylurea Herbicides. In Handbook of residue analytical methods for agrochemicals, P.W. Lee, John Wiley and Sons.
- Rahman, A. 1989. Sensitive bioassays for determining residues of sulfonylurea herbicides in soil and their availability to crop plants. *Hydrobiologia*. 188/189: 367-375.
- Rashid, A., P. Sharma, and I. Evans. 2001. Plant Bioassay Techniques for Detecting and Identifying Herbicide Residues in Soil. Alberta Research Council
- Roberts, T. R. 1996. Assessing the environmental fate of agrochemicals. *Journal of Environmental Science and Health Part B*. 31(3): 325-335.
- Rogers, S., and Baldock, J., 2003. Herbicide link to low legume nitrogen fixation., *Farming ahead*. 134: 39-40.
- Roughley, R. J. 1970. The influence of root temperature, Rhizobium strain and host selection on the structure and nitrogen-fixing efficiency of the root nodules of *Trifolium subterraneum*. *Annals of Botany*. 34: 631.
- Rovira, A. D. Neate, S. M., and Warren, R. A. 1993. the effect of Glean residues on growth and nodulation of medic in an alkaline dark brown sandy loam. p.429. *Proceedings of the 7th Australian Agronomy Conference*. Adelaide.
- Royuela, M., Gonzalez, A., Arrese-Igor, C., Aparicio-Tejo, P. M., Gonzalez-Murua, C. 1998. Imazethapyr inhibition of acetolactate synthase in Rhizobium and its symbiosis with pea. *Pesticide Science*. 52: 372 – 380.
- Russel, M. H., Saladin, J. L., and Lichtner, I. 2002. Sulfonylurea herbicide. *Pesticide Outlook*. *Royal Society of Chemistry*. 166 – 173.

- Saghir Khan, M., and Zaidi, A. 2006. Biotoxic Effects of Herbicides on Growth, Nodulation, Nitrogenase Activity, and Seed Production in Chickpeas. *Communications in Soil Science and Plant Analysis*. 37: 1783- 1793.
- Saint Macary, H., Marqueses, E.P., and Torres, R.O. 1985. Effect of flooding on growth and nitrogen fixation of two sesbania species. *Philip pines. Journal Crop science*. 10: 17 - 20.
- Sawada, Y., Nagay, Y., Ueama, M., 1988. Probable toxicity of surface-active agent in commercial herbicide containing glyphosate. *The Lancet* 1, 299–299.
- Sawicka, A., SKrzypczak, G., and Bleharczyk, A.1996. Influence of imazathapyr and linuron on soil microorganisms under legume crops. *Second International Weed control Congress Copenhagen*. 361 -368.
- Schmuckler, M. E., A. C. Barefoot, D.A. Kleier, and D.P. Cobranchi. 2000. Vapor pressures of sulfonylurea herbicides. *Pest Managment Science*. 56: 521–532.
- Shinn, S. L., Thill, D. C., Price, W. J., and Ball, D. A. 1998. Response of downy brome (*Bromus tectorum*) and rotational crops to MON-37500. *Weed Technology*. 12: 690-698.
- Silva, J. A., and Uchida,R. 2000. Plant Nutrient Management in Hawaii's Soils, Approaches for Tropical and Subtropical Agriculture. University of Hawaii press, Manoa.
- Sing, G., and Wright, D. 1999. Effect of herbicides on nodulation, symbiotic nitrogen fixation, growth and yield of pea (*Pisum sativum* L.). *Journal of Agriculture Science*. 133: 21- 30.
- Singh, f. and Diwakar, B.1995. Chickpea Botany and Production Practices. International Crops Research Institute for the Semi-Arid Tropics Patancheru 502 324, Andhra Pradesh, India
- Singh, G. 2005. Effects of herbicides on biological nitrogen fixation in grain and forage legumes-a review. *Agricultural Review*. 26: 133-140.
- Singh, G., and Wright, D. 2002. In vitro studies on the effects of herbicides on the growth of rhizobia. *Letters in Applied Microbiology*. 35: 12- 16.
- Smith, A. E. 1989. Degradation of the herbicide diclofop-methyl in prairie soils. *Journal of Agriculture Food Chemistry*. 25: 893–898.
- Smith, A. E., Grover, R., Cessna, A. J., Shewchuk, S. R., Hunter, J. H. 1986. Fate of diclofop-methyl after application to a wheat field. *Journal of Environment Quality*. 15: 234–238.
- Song, L., Hua, R., and Zhao, Y. 2005. Biodegradation of fenoxapropethyl by bacteria isolated from sludge. *Journal of Hazardous Material*. 118(1): 247-251.
- Sprent, J. I., and Sprent, P. 1990. Nitrogen fixing organisms: pure and applied aspects. ch 4: 93 - 117. Chapman and Hall, Melbourne.
- Stenersen, J. 2004. Chemical Pesticides: Mode of Action and Toxicology. CRC PRESS, Boca Raton, Florida.
- Streibig, J. C. 1988. Herbicide bioassay. *Weed Research*. 28(6):479-484.

- Sun, J., J. Guo, and Q. Ye. 2000. Release of bound ¹⁴C-chlorsulfuron and /or its degraded products and the components of released products. *Acta Agriculture Nucleatae Sinica* (in Chinese). 14 (5): 295–300.
- Sunderland, S. L., P. W. Santelman, and T. A. Baughman. 1991. A rapid, sensitive soil bioassay for sulfonylurea herbicides. *Weed Science*. 39: 296-298.
- Szawoznik, M., and Tomaro, M. 2005. Effect of chlorimuron-ethyl on *Bradyrhizobium japonicum* and its symbiosis with soybean. *Pest Management Science*. 61: 1003 -1008.
- Taylor, A. D. 2008. The effect of herbicides on nitrogen fixation in fieldpea (*Pisum sativum* L.) and chickpea (*Cicer arietinum* L.). MSc Thesis, Saskatchewan Saskatoon University.
- Theng B. K. G., R. S. Kookana, and I. Rahman. 2000. Environmental concerns of pesticide in soil and groundwater and management strategies in oceania In: *Soil and Groundwater Pollution and Remediation*. CRS Press. Boca Raton. Florida.
- Thompson, M.E. 2007. Acetohydroxyacid synthase inhibitors (AHAS/ALS). In *Modern crop protection compounds*, W. Kramer and U. Schirmer, WILEY-VCH Verlag GmbH and Co. KGaA.
- Vencill, W. K. 2002. Herbicide Handbook (No. Ed. 8). *Weed Science Society of America*. 493P.
- Venkateswarlu, v. 1988. Effect fluchloralin and pendimethalin herbicides on growth and nodulation urdbean. *Indian Journal. Pulses Research*. 1: 70-72.
- Vidal, D., Martinez, J., Bergareche, C., Miranda, A.M., and Simon, E. 1992. Effect of methabenzthiazuron on growth and nitrogenase activity in *Vicia faba*. *Plant and Soil*. 144: 235 - 245.
- Walker, S. R., J. E. Barnes, V. A. Osten, J. D. Churchett and M. McCosker. 2000. Crop responses to sulfonylurea residues in soils of the subtropical grain region of Australia. *Australian Journal of Agriculture Research*. 51(5): 587 – 596.
- Wally, F., Taylor, A., and Lupwayi, N. 2006. Herbicide residues and effects on nitrogen fixation in pulse crops. *Presented at Farm Technology*. 2006. Herbicide Effects on Pulse Crop Nodulation and Nitrogen Fixation. 52-55.
- Wehtje, G., Gilliam, C. H., & Marble, S. C. 2012. Duration of Flumioxazin-Based Weed Control in Container-Grown Nursery Crops. *Weed Technology*, 26(4), 679-683.
- Zahran, H. H. 1999. Rhizobium- legume symbiosis and Nitrogen Fixation under Severe Conditions and in Arid Climate. *Microbiology and Molecular Biology Reviews*. 64: 968 – 989.
- Zhou, Q., Liu, W., Zhang, Y., Liu, K. 2007. Review Action mechanisms of acetolactate synthase-inhibiting herbicides. *Pesticide Biochemistry and Physiology*. 89: 89- 96.
- Zimdahl, R. L. 2010. A History of Weed Science in the United States. *Elsevier Inc*.