

منابع

- ابراهیمی پاک، ن. ع. ۱۳۸۳. مدلسازی عملکرد محصولات زراعی در شرایط کم آبیاری. رساله دکتری، دانشگاه آزاد اسلامی، واحد علوم و تحقیقات.
- آذرنیو ند، ح.، عباسی، م.، عنایتی، ع. ۱۳۸۸. ارزیابی و تعیین بهترین تیمارهای هیدروپرایمینگ و اسموپرایمینگ بر ویژگی های جوانه زنی آگروپایرون الگاتوم. نشریه مرتع و آبخیزداری مجله منابع طبیعی ایران، ۶۲: ۴۳۱ تا ۴۴۴.
- اشرف، ب. ۱۳۹۰. برآورد نیاز آبی چغندر قند و گندم در دوره ۱۳۹۰-۱۴۰۹ با استفاده از داده های شبیه سازی شده توسط مدل LARS-W65 (استان خراسان رضوی). پایان نامه کارشناسی ارشد. دانشگاه فردوسی مشهد.
- اداره کل آمار و اطلاعات وزارت جهاد کشاورزی. ۱۳۹۳ آمارنامه کشاورزی ۱۳۹۲-۱۳۹۱. انتشارات معاونت برنامه ریزی و اقتصاد، مرکز فناوری اطلاعات و ارتباطات. ۱۶۷ صفحه.
- اورا ضی زاده، م. ح.، حسین پور، م.، قنبری، د. و شریفی، ح. ۱۳۸۶. مدیریت تلفیقی علف های هرز چغندر قند با استفاده از تاریخ کاشت و کولتیواتور در منطقه دزفول. چغندر قند، ۲۳: ۱۲۳ تا ۱۳۴.
- بازوبندی، م.، باغستانی، م. ع. و زند، ا. ۱۳۸۵. علف های هرز و مدیریت آنها در مزرعه چغندر قند. انتشارات مؤسسه تحقیقات آفات و بیماری های گیاهی. ۸۰ صفحه
- بازوبندی، م.، نیکخواه، م. ن.، نوباوی کلات، م.، و اخوان، م. ۱۳۸۹. مطالعه فلور علف های هرز مزارع چغندر قند شاهرود. سومین همایش علوم علف های هرز، ۲۸ تا ۲۹ اسفند، بابل سر.

برادران فیروزآبادی، م.، عبداللهیان نوقابی، م.، رحیم زاده، ف.، مقدم، م.، رنجی، ذ.ا.، پارسائیان، م. ۱۳۸۲. تأثیر سطوح مختلف تنش خشکی مداوم بر کمیت و کیفیت سه رگه چغندر قند. مجله چغندر قند، ۱۹(۲): ۱۳۳ تا ۱۵۰.

بصیری، ک.، نجفی، ح.، میرهادی، م. ج. و ویسی، م. ۱۳۹۱. تأثیر روش های تلفیقی کنترل علف های هرز پهن برگ بر عملکرد چغندر قند در منطقه کرمانشاه. مجله چغندر قند، ۲۸: ۱۵۹ تا ۱۶۹.

جباری، ر.، امینی دهقی، م.، گنجی ارجنکی، ف. و آگاهی، ک. ۱۳۹۰. تأثیر مدت و روش های پرایمینگ بر جوانه زنی زیره سبز (*Cuminum cyminum* L.). مجله دانش زراعت، ۴: ۲۳ تا ۳۰.

جلیلیان، ع. دبیری، و. خورگامی، ع. بساطی، ج.ش و ا. یوسف آبادی. ۱۳۹۰. بررسی جوانه زنی و سبز شدن ارقام منوژرم چغندر قند تحت شرایط مختلف تنش رطوبتی. مجله چغندر قند، ۲۷(۲): ۱۳۵ تا ۱۵۲.

جلیلیان، ع.، مظاهری، د.، توکل افشاری، ر.، رحیمیان، ح.، عبداللهیان نوقابی، م. و گوهری، ج. ۱۳۸۳. برآورد دمای پایه و بررسی روند جوانه زنی و سبز شدن ارقام منوژرم چغندر قند در درجات مختلف حرارت، مجله چغندر قند، ۲۰: ۹۷ تا ۱۱۲.

جلینی، م.، قائمی، ع.، ذره پرور، ه. ۱۳۸۷. بررسی اثرات تنش آبی و مقادیر مختلف کود نیتروژن بر عملکرد و کارایی مصرف آب در چغندر قند. ۴(۲): ۱۶۴ تا ۱۷۲.

جهاد اکبر، م. ر.، طباطبایی نیم اورد، ر. و ابراهیمیان، ح. ر. ۱۳۸۳. بررسی دوره بحرانی کنترل علف های هرز در کبوترآباد اصفهان. چغندر قند، ۲۰: ۷۳ تا ۹۲.

چراغی، ف.، محمودی س.، جامی الاحمدی م و پار سا س. ۱۳۹۰. بهبود جوانه زنی و رشد گیاه دارویی گلپر ایرانی تحت تاثیر آماده سازی اسمزی بذر. فصل نامه ی داروهای گیاهی. شماره ۴: ۲۲۹ تا ۲۳۸.

حسینی، آ. و کوچکی، ع. ۱۳۸۶. اثر تیمارهای مختلف پرایمینگ بر درصد و سرعت جوانه زنی چهار رقم بذر چغندر قند. مجله پژوهش‌های زراعی ایران، ۵: ۶۹ تا ۷۶.

حمزه‌ئی، ج.، ر. شایان فرد و ک. فتوحی. ۱۳۹۱. اثر پرایمینگ بذر بر برخی ویژگی‌های کمی و کیفی دو رقم چغندر قند (*Beta vulgaris* L.). مجله تولید و فراوری محصولات زراعی و باغی، ۶: ۱۵۵ تا ۱۶۴.

رحیمی، ا. ۱۳۹۱. اثر اسموپرایمینگ بذر و دور آبیاری بر عملکرد کمی و میزان اسانس زیره سبز (*Cuminum cuminum* L.). فصلنامه علمی-پژوهشی تحقیقات گیاهان دارویی و معطر ایران، ۲۸: ۱۳۱ تا ۱۴۱.

رحیمی، م. ب. ۱۳۷۶. تعیین آب مصرفی پتانسیل چغندر قند به روش لایسیمیتری. گزارش پژوهشی بخش تحقیقات خاک و آب همدان.

رحیمیان، م. ح. و اسدی، ح. ۱۳۷۹. تأثیر تنش آبی بر عملکرد و کیفی چغندر قند و تعیین تابع تولید و ضریب گیاهی آن. مجله خاک و آب، ویژه نامه آبیاری، ۱۲: ۵۷ تا ۶۳.

رضوی، ر. ۱۳۷۴. تعیین آب مصرفی پتانسیل چغندر قند با استفاده از لایسیمتر. گزارش نهایی شماره ۳۵۶ آذربایجان غربی.

رمضانی، م. و رضایی سوخت آبدانی ر. ۱۳۹۱. مقایسه زمان و غلظت پرایمینگ های مختلف بر مولفه های جوانه زنی بذر کلزا رقم ساریگل، مجله زراعت و اصلاح نباتات، ۸(۱): ۱۴۵ تا ۱۵۹

رئیزی، ف. ۱۳۷۲. بررسی تأثیر کاهش میزان آب آبیاری در آخر فصل رشد در تولید قند و چغندر قند. گزارش نهایی شماره ۱۸. مرکز تحقیقات کشاورزی اصفهان.

زمانی، غ. ۱۳۷۷. بررسی اثر زمان کنترل و دفعات کنترل علف‌های هرز بر عملکرد کمی و کیفی چغندر قند (*Beta vulgaris*) در منطقه بیرجند. پنجمین کنگره زراعت و اصلاح نباتات، مؤسسه اصلاح و تهیه نهال و بذر کرج.

سلطانی، ا.، اکرم قادری، ف. و معمار، ح. ۱۳۸۶. تأثیر پرایمینگ بر مؤلفه‌های جوانه‌زنی بذر و رشد گیاهچه پنبه در شرایط تنش خشکی. مجله علوم کشاورزی و منابع طبیعی، ۱۴ (ویژه نامه زراعت و اصلاح نباتات): ۹ تا ۱۶.

سنجانی، س. ۱۳۹۱. پهنه بندی اگرواکولوژیک و بررسی خلاء عملکرد سه محصول گندم، چغندر قند و ذرت در استان خراسان. پایان نامه دکتری، دانشگاه فردوسی مشهد.

شهبازی، ح. ۱۳۷۵. بررسی اثر رقابت علف‌های هرز یکساله بر خواص کمی و کیفی چغندر قند. پایان نامه کارشناسی ارشد زراعت. دانشگاه فردوسی مشهد.

شهبازی، ح. ع. و عبداللهیان نوقابی، م. ۱۳۷۹. دوره بحرانی رقابت علف‌های هرز با چغندر قند در مشهد. مجله چغندر قند، ۱۶: ۵۸ تا ۷۴.

عبداللهیان نوقابی، م.، شیخ‌الاسلامی، ر. و بابائی، ب. ۱۳۸۴. اصطلاحات و تعاریف کمیت و کیفیت تکنولوژیکی چغندر قند. چغندر قند، ۲۱: ۱۰۱ تا ۱۰۴.

عبداللهیان نوقابی، م.، رهبری، ا.، علیزاده، ح.، و رحیمیان مشهدی، ح. ۱۳۸۹. کنترل تلفیقی علف‌های هرز در سیستم تهیه بستر بذر چغندر قند به طور کامل در پاییز. مجله پژوهش‌های علف‌های هرز، ۲(۲): ۲۹ تا ۴۲.

عروج نیا، س.، حبیبی، د.، فتح‌الله طالقانی، د.، صفری دولت آبادی، س.، پازکی، ع.، معاونی، پ.، رحمانی، م.، فرشیدی، م. ۱۳۹۱. بررسی عملکرد و اجزای عملکرد ژنوتیپ‌های مختلف چغندر قند تحت شرایط تنش خشکی. مجله زراعت و اصلاح نباتات، ۸(۱): ۱۲۷ تا ۱۴۴.

فارسی نژاد، ک. و ع. فرح بخش. ۱۳۷۴. بررسی اثر مدت رقابت علف‌های هرز یکساله روی چغندر قند. مجله چغندر قند، ۱۱: ۱۳ تا ۱۹.

فتح الله طالقانی، د. ۱۳۹۱. ایران ششمین تولیدکننده قند و شکر جهان است. <http://econews.ir/>

فتح الله طالقانی، د. ۱۳۹۳. افزایش سطح زیر کشت چغندر قند در کشور / آذربایجان غربی رکورددار تولید

چغندر قند. <http://www.ana.ir/keshavarzi/item/۱۸۴۶۲-۱.html>

فتح الله طالقانی، د.، صادق زاده حمایتی، س.، مطلوبی، ف.، خیامیم، س. ۱۳۸۸. بررسی برخی صفات کمی و

کیفی ژنوتیپ های امید بخش چغندر قند در شرایط تنش خشکی. مجله چغندر قند، ۲۵ (۲): ۱۱۳ تا

۱۲۳.

فدائی شهری، م. ر.، نجفی، ح.، عبداللهیان نوقابی، م. و میرهادی، م. ج. ۱۳۹۰. بررسی نقش مالچ گیاهان

پوششی باریک برگ زمستانه بر جمعیت علف های هرز مزارع چغندر قند. مجله دانش علف های هرز، ۷:

۵۹ تا ۶۶.

فرشید، ع. ا. ۱۳۷۶. برآورد آب مورد نیاز گیاهان عمده زراعی و باغی کشور. نشر آموزش کشاورزی

کوچکی ع. و ا. سلطانی. ۱۳۷۴. زراعت چغندر قند (ترجمه). انتشارات جهاد دانشگاهی مشهد، ۲۰۰ صفحه.

کوچکی ع.، حسینی، م. و م. نصیری محلاتی (ترجمه). ۱۳۷۲. رابطه آب و خاک در گیاهان زراعی. نام مؤلفان.

انتشارات جهاد دانشگاهی مشهد، ۵۶۰ صفحه.

کوچکی، ع.، نصیری محلاتی، م.، سیاهمرگویی، آ.، قرخلو، ج.، راستگو، م.، قائمی، ع. ۱۳۸۷. مقایسه الگوهای

مختلف مدیریت تلفیقی بر تراکم علف های هرز و عملکرد چغندر قند (*Betula vulgaris* L.). مجله پژوهش

های زراعی ایران، ۶ (۲): ۳۸۳ تا ۳۹۴.

مجاهدی، ه.، عامریان، م. ر. و مرادی، ه. ۱۳۹۰. بررسی تأثیر اسید هیومیک بر شاخص های جوانه زنی و رشد

گیاهچه آفتاب گردان (*Helianthus annuus*) در سطوح مختلف کادمیوم. اولین همایش گیاه پالایی،

مرکز بین المللی علوم و تکنولوژی پیشرفته و علوم محیطی کرمان، ۲۷ بهمن ماه ۱۳۹۰.

منصوری، ب. و ابوطالبیان، م.ع. ۱۳۹۱. تأثیر پرایمینگ در مزرعه و آبیاری تکمیلی بر سرعت سبز شدن، عملکرد و اجزای عملکرد دانه دو رقم نخود (*Cicer arietinum*). مجله پژوهش های تولید گیاهی، ۲۰: ۱۷۹ تا ۱۸۶.

مهدی زاده، ا.، ابوطالبیان، م. ع.، حمزه یی، ج.، احمدوند، گ. و قمری رحیم، ن. ۱۳۹۰. تأثیر پرایم کردن بذر در مزرعه بر تراکم علف های هرز ذرت در همدان. چهارمین همایش علوم علف های هرز ایران، ۱۷-۱۹ بهمن ماه، اهواز. صفحه ۹۲۹ تا ۹۳۱.

موسوی، م.، جوانشیر، ع.، میرشکاری، ب. ۱۳۹۲. بررسی تاثیر علف هرز کنگر شیردار بر عملکرد کمی و کیفی چغندر قند در تاریخ های کاشت مختلف پاییزه در دشت مغان. اولین همایش علمی داخلی شرکت کشت و صنعت و دامپروری، مغان. ایران

میرزایی، م. ر و رضوانی، س.م.ا. ۱۳۸۵. تعیین حساسیت به کم آبی در مراحل چهارگانه رشد چغندر قند. چکیده مقالات نهمین کنگره زراعت و اصلاح نباتات ایران. ۵-۷ شهریور. پردیس ابوریحان-دانشگاه تهران. ص ۵۶۳.

میر شکاری، ب. ۱۳۸۷. کارایی مدل های تجربی رقابت در شبیه سازی عملکرد چغندر قند در تداخل با علف هرز تاج خروس ریشه قرمز. مجله چغندر قند، ۲۴(۲): ۷۳ تا ۹۱.

نادعلی، ی.، پاک نژاد، ف.، سوغانی، م.، الهی پناه، ف.، غفاری، م. ۱۳۷۸. اثر متانول بر عملکرد و اجزای عملکرد و شاخص های رشد نخود معمولی. مجله اکوفیزیولوژی زراعی، ۲(۳): ۱۷۶ تا ۱۸۴.

نجفی، ب. ۱۳۸۱. بررسی سیاست های حمایت قیمتی در چغندر قند: مسائل و رهیافت ها. اقتصاد کشاورزی و توسعه، ۳۹: ۲۷ تا ۴۸.

نیک زاد چالشتری، خ. و عموآقایی، ر. ۱۳۹۲. تأثیر پرایمینگ بر جوانه‌زنی دانه‌های گوجه فرنگی در دماهای زیر بهینه. مجله پژوهش‌های گیاهی (مجله زیست‌شناسی ایران)، ۲۶: ۲۲۶ تا ۲۳۷.

وزیری، ژ. ۱۳۷۰. تعیین آب مصرفی پتانسیل چغندر قند با استفاده از لایسیمتر. گزارش پژوهشی بخش تحقیقات خاک و آب کرمانشاه.

Abdollahian-Noghabi M, Froud-Williams B. 2000. Drought stress and weed competition in sugar beet. *British Sugar Beet Review*, 68(1): 47-49.

Abdollahian-Noghabi M, Sadeghian SY. 2002. Changes in the concentrations of glycinebetaine, glutamine and sugars in sugar beet subjected to soil moisture deficit. *Proceeding of the 65th IIRB Congress, February 2002, Brussels (Belgium)*, PP 357-382.

Abdollahian-Noghabi, M. 1999. Ecophysiology of sugar beet cultivars and weed species subjected to water deficiency stress. Ph.D. Thesis. The University of Reading.

Adani, F., Spagnol, M., and Nierop, K. G. J. 2006. Biochemical origin and refractory properties of humic acid extracted from maize plants: The contribution of lignin. *Biogeochemistry*, 82: 55-65.

Afzal, I., Rauf, S., Basra, S. M. A., and Murtaza, G. 2008. Halopriming improves vigor, metabolism of reserves and ionic contents in wheat seedlings under salt stress. *Plant Soil Environ.* 54 (9), 382–388.

Akeson, W. R., M. A. Henson, A. H. Freytag and D .C. Westfall. 1980. Sugar beet fruit germination and emergence under moisture and temperature stress. *Journal of Crop Science*. 20: 735-739.

Al-Humaid, A. I. 2002. Effects of osmotic priming on seed germination and seedling growth of bermudagrass (*Cynodon dactylon* L.) under saline conditions. *Bullet. Faculty Agric. Cairo Univ.* 53: 265–274.

- Ali, H., Akbar, Y., Razaq, Dr. A., and Muhammad, D. 2014. Effect of humic acid on root elongation and percent seed germination of wheat seeds. *International Journal of Agriculture and Crop Sciences*, 7: 196-201.
- AL-Jbawi, E., and Abbas, F. 2013. The Effect of Length during Drought Stress on Sugar Beet (*Beta vulgaris* L.) Yield and Quality. *Persian Gulf Crop Protection*, 2: 35-43.
- Allen R., L. A. Pereira. And M. Smith. 1998. Crop Evapotranspiration: Guidelines for Computing Crop Water Requirement. Rome: FAO Irrigation and Drainage Paper, No. 56, Italy.
- Almani M.P., C. Abd-Mishani and B. YazdiSmadi. 1997. Drought resistance in sugar beet genotypes. *Iranian Journal of Agricultural Science*, 28:15-25.
- Andreux F. 1996. Humus in world soils. In “Humic substances in terrestrial Ecosystems” (Ed. A. Piccolo). Elsevier, Amsterdam, the Netherlands.
- Anese, S., da Silva, E. A. A., Davide, A. C., Rocha Faria, J. M., Soares, G. C. M., Matos, A.C. B., and Toorop, P. E. 2011. Seed priming improves endosperm weakening, germination, and subsequent seedling development of *Solanum lycocarpum* St. Hill. *Seed Science and Technology*, 39: 125–139.
- Anwar, M. P., Juraimi, A. S., Puteh, A., Selamat, A., Rahman, M. M., Samedani, M. 2012. Seed priming influences weed competitiveness and productivity of aerobic rice. *Acta Agric Scandn.* 62:499-509
- Ashraf, M., and Bray, C. M. 1993. DNA synthesis in osmoprimed leek (*Allium porrum* L.) seeds and evidence for repair and replication. *Seed Science Technol.* 3: 15–23.
- Ashraf, M., and Foolad, M. R. 2005. Pre-sowing seed treatment —a shotgun approach to improve germination, plant growth, and crop yield under saline and non-saline conditions. *Advances in Agronomy*, 88: 223-271.
- Ashraf, M., and Iram, A. 2002. Optimization and influence of seed priming with salts of potassium or calcium in two spring wheat cultivars differing in salt tolerance at the initial growth stages. *Agrochimica*, 46: 47–55.

- Ashraf, M., and Rauf, H. 2001. Inducing salt tolerance in maize (*Zea mays* L.) through seed priming with chloride salts: growth and ion transport at early growth stages. *Acta Physiol.Plant.* 23: 407–414.
- Ashraf, M., Athar, H. R., Harris, P. J. C., and Kwon, T. R. 2008. Some Prospective Strategies for Improving Crop Salt Tolerance. *Advances in Agronomy*, 97: 45-110.
- Atreya, A., Vartak, V., Bhargava, S., 2009. Salt priming improves tolerance to desiccation stress and extreme salt stress in *Bruguiera cylindrica*. *Int. J. Integr. Biol.* 6: 68–73.
- Austin, R. B., Longden, P. C., and Hutchinson, J. 1969. Some effects of ‘hardening’ on carrot seeds. *Annals of Botany*, 33: 883.
- Bailly, C., Benamar, A, Corbineau, F., and Côme, D. 2000. Antioxidant systems in sunflower (*Helianthus annuus* L.) seeds as affected by priming. *Seed Science Research*, 10: 35–42
- Balestrazzi A, Confalonieri, M, Macovei, A., Dona, M., Carbonera, D .2011. Genotoxic stress and DNA repair in plants: emerging functions and tools for improving crop productivity. *Plant Cell Rep* 30:287–295.
- Basra, M. A. S., Ehsanullah, E. A., Warraich, M. A., and Afzal, I. 2003. Effect of storage on growth and yield of primed canola (*Brassica napus*) seeds. *Intern. J. Agri. Biio.* 5: 117-120.
- Bassil, E. S. and Kaffka, S. R. 2002. Response of safflower (*Carthamus tinctorius* L.) to saline soils and irrigation I. Consumptive water use. *Agr. Water. Manage.* 54 : 69–78.
- Beligni, M. V., and Lamattina, L. 1999: Nitric oxide counteracts cytotoxic processes mediated by reactive oxygen species in plant tissues. *Planta*, 208: 337–344.
- Bennett, M., Fritz, V. A., and Callan, N. W. 1992. Impact of seed treatments on crop stand establishment. *Hort Technol.* 2, 345–349.
- Berrie, A. M. M., and Drennan, D. S. H. 1971. The effect of hydration-dehydration on seed germination. *New Phytol* 70:135.
- Bewley, J. D., and Black, M. 1994. *Seeds: Physiology of Development and Germination*. Plenum Press, New York.

- Bohme, M., and Thi Lua, H. 1997. Influence of mineral and organic treatments in the rhizosphere on the growth of tomato plants. *Acta Hortic.*, 450: 161-168.
- Bose, B., and Mishra, T. 1992. Response of wheat seed to pre sowing seed treatments with Mg (NO₃). *Ann. Agric. Res.* 13: 132–136.
- Boyd, N. S., Brennan, E. B., Smith, R. F., and Yokota, R. 2009. Effect of seeding rate and planting arrangement on rye cover crop and weed growth. *Agronomy Journal*, 101: 47-51.
- Bradford, K. J. 1986. Manipulation of seed water relations via osmotic priming to improve germination under stress conditions. *HortScience*, 21: 1105–1112.
- Bray, C. M. 1995. Biochemical processes during the osmopriming of seeds. In “Seed development and germination” (Eds. J. Kigel and G. Galili) Marcel Dekker Inc, New York.
- Bray, C. M., Davison, P. A., Ashraf, M., and Taylor, R.M. 1989. Biochemical changes during osmopriming of leek seeds. *Annals of Botany*, 63: 185–193.
- Brown, K. F, and Dunham, R. J. 1987. Recent progress on fibrous root system of sugar beet in world sugar and Sweetener year book. F.O. Licht, GmbH, Rutzbury.
- Bujalski, W., Nienow, A. W. 1991. Large-scale osmotic priming of onion seeds: a comparison of different strategies for oxygenation. *Science Hort*, 46:13.
- Cal, J. P., and Obendorf, R. L. 1972. Imbibitional chilling injury in *Zea mays* L. altered by initial kernel moisture and maternal parent. *Crop Science*, 12: 369–373.
- Campbell, J. A., Naidu, B. P., and Wilson, J. R. 1999. The effect of glycinebetaine application on germination and early growth of sugarcane. *Seed Science Technol.* 27, 747–752.
- Cantliffe, D. J., Nascimento, W.M., Y., and Huber, D. J. 2000. Lettuce endosperm weakening: a role for endo-B-mannanase in seed germination at high temperature In: Black, M., Bradford, K. J., and Vazquez-Ramos, J. (eds). *Seed Biology: Advances and Application*. CAB International, Wallingford, UK, pp: 277-285.

- Capron, I., Corbineau, F., Dacher, F., Job, C., Côme, D., and Job, D. 2000. Sugarbeet seed priming: effects of priming conditions on germination, solubilization of 11-S globulin and accumulation of LEA proteins. *Seed Science Research*, 10: 243–254.
- Casenave, E. C., and Toselli, M. E. 2007. Hydropriming as a pre-treatment for cotton germination under thermal and water stress conditions. *Seed Science. Technol.* 35: 88–98.
- Catusse, J., Meinhard, J., Job, C., Strub, J. M., Fischer, U., Pestsova, E., Westhoff, P., Van Dorselaer, A., and Job, D. 2011. Proteomics reveals potential biomarkers of seed vigor in sugarbeet. *Proteomics*, 11: 1569–1580.
- Cayuela, E., Perez Alfocea, F., Caro, M., and Bolarin, M. C. 1996. Priming of seeds with NaCl induces physiological changes in tomato plants grown under salt stress. *Physiol. Plant.* 96: 231–236.
- Chang Zheng, H., Jin, H., Zhi Yu, Z., Song Lin, R., and Wen Jian, S. 2002. Effect of seed priming with mixed salt solution on germination and physiological characteristics of seedling in rice (*Oryza sativa* L.) under stress conditions. *J. Zhejiang Univ. Agric. Life Science*, 28:175–178.
- Chen, Y., and Aviad, T. 1990. Effects of humic Substances on Plant Growth, in: MacCarthy, P et al. (Eds), *Humic Substances in Soil and Crop Sciences, Selected Readings. Amer. Soc. Of Agronomy., Madison WI*, 161-186.
- Chen, K., and Arora, R. 2013. Priming memory invokes seed stress-tolerance. *Environmental and Experimental Botany*, 94: 33-45.
- Chiu, K. Y., Chuang, S. J., and Sung, J. M. 2006. Both anti-oxidant and lipid-carbohydrate conversion enhancements are involved in priming-improved emergence of *Echinacea purpurea* seeds that differ in size. *Science Horticulture*, 108: 220–226.
- Chojnowski, M., Corbineau, F., and Côme, D. 1997. Physiological and biochemical changes induced in sunflower seeds by osmopriming and subsequent drying, storage and aging. *Seed Science Research*, 7: 323–331.
- Clark, L. J., Whalley, W. R., Ellis-Jones, J., Dent, K., Rowse, H. R., Finch-Savage, W. E., Gatsai, T., Jasi, L., Kaseke, N. E., Murungu, F. S., Riches, C. R., Chiduzza, C. 2001. On

- farm seed priming in maize: a physiological evaluation. Seventh Eastern and Southern Africa Regional Maize Conference, 11-15 February.
- Clark, N. A., and James, P. E. 1991. The effects of priming and accelerated aging upon the nucleic acid content of leek seeds and their embryos. *Journal of Experimental Botany*. 42: 261–268.
- Colon, W., Gomez, F., Cerritos, G., Rodriguez, F., and Khan, A. A. 1995. Increase in emergence of sorghum and bean as a result of matrix conditioning of seeds. *CEIBA* 36: 247–254.
- Cooke, D.A. and Scott, R.K. 1993. In: D.A. Cooke and R.K. Scott (Eds.), *The Sugar Beet Crop, Introduction*, pp. xiv: Chapman & Hall. London.
- Corbineau, F., Özbingöl, N., Vineland, D., and Côme, D. 2000. Improvement of tomato seed germination by osmopriming as related to energy metabolism. In “Seed Biology Advances and Applications: Proceedings of the Sixth International Workshop on Seeds” (Eds. M., Black, K. J. Bradford, and J. Vasquez-Ramos). Merida, Mexico, ABI, Cambridge.
- Cordoba-Canero, D., Roldan-Arjona, T., Ariza, R. R. 2014. Arabidopsis ZDP DNA 30-phosphatase and ARP endonuclease function in 8-oxoG repair initiated by FPG and OGG1 DNA glycosylases. *Journal of Plant*, 79: 824–834.
- Cousens, R. 1985. An empirical model relating crop yield to weed and crop density and a statistical comparison with other models. *Journal of Agriculture Science*. 105:513-521.
- Dabrowska, B., Suchorska-Tropilo, K., and Capecka, E. 2001. Presowing conditioning of hot pepper (*Capsicum annuum* L.) seeds and its results in a field growing. Part I. Effect on the vigour of seeds and seedlings. In “*Annals Warsaw Agric. Univ., Hort.Landscape Architecture*, Vol. 22, pp. 3–7.
- Dahal, P. D., Bradford, K. J., and Jones, R. A. 1990. Effects of priming and endosperm integrity on seed germination rates of tomato genotypes I. Germination at suboptimal temperature. *Journal of Experimental Botany*. 41: 1431–1439.
- Darwin, C. 1855. Effect of salt-water on the germination of seeds. *Gardeners’ Chronicle and Agricultural Gazette*, 47:773

- Dat, J. F., Foyer, C. H., and Scott, I. M. 1998a. Changes in salicylic acid and antioxidants during induced thermotolerance in mustard seedlings. *Plant Physiol.* 118, 1455–1461.
- Dat, J. F., Lopez-Delgado, H., Foyer, C. H., and Scott, I. M. 1998b. Parallel changes in H₂O₂ and catalase during thermo-tolerance induced by salicylic acid and heat acclimation of mustard seedlings. *Plant Physiol.* 116, 1351–1357.
- Dawson JH. 1965. Competition between irrigated sugarbeets and annual weeds. *Weeds Reserch*, 13: 245-249
- de Castro, R. D., Zheng, X. Y., Bergervoet, J. H. W., de Vos, C. H. R., and Bino, R. J. 1995. β -tubulin accumulation and DNA replication in imbibing tomato seeds. *Plant Physiol.* 109: 499–504.
- De Lespinay, A., Lequeux, H., Lambillotte, B., and Lutts, S. 2010. Protein synthesis is differentially required for germination in *Poa pratensis* and *Trifolium repens* in the absence or in the presence of cadmium. *Plant Growth Regul.* 61, 205–214.
- Demir kaya, M. 2006. Seed treatment to overcome salt and drought stress during germination in sunflower (*Helianthus annus* L.). *European journal of Agronomy*.24(4): 291-295.
- Donovan, T. M. O'. 2002. The Effects of Seed Treatment, Sowing date, Cultivar and Harvest date on the Yield and Quality of Sugar Beet. MSc. Thesis. National University of Ireland. 147 p
- Duman, I. 2006. Effect of seed priming with PEG and K₃PO₄ on germination and seedling growth in Lettuce. *Pakistan Journal of Biological Sciences*, 9: 923-928.
- Durr C, and J., Boiffin. 1995. Sugar beet seedling growth from germination to first leaf stage. *Journal of Agricultural Science*. 124: 427-535.
- Durrant, M.J. , Mash, S.J. and Jaggard, K.W. 1993. Effect of seed advancement and sowing date on establishment, bolting and yield of sugar beet. *Journal of Agricultural Science, Cambridge*, 121, pp. 333-341.

- El-Araby, M. M., Moustafa, S. M. A., Ismail, A. I., Hegazi, A. Z. A. 2006. Hormone and phenol levels during germination and osmopriming of tomato seeds, and associated variations in protein patterns and anatomical seed features. *Acta Agron. Hung.* 54: 441–458.
- Ells, J. E. 1963. The influence of treating tomato seed with nutrient solution on emergence rate and seedling growth. *Proc Am Soc Horticulture Science*, 83:684–687.
- El-Saidy, A. E. A., Farouk, S., and Abd El-Ghany, H. M. 2011. Evaluation of different seed priming on seedling growth, yield and quality components in two sunflower (*Helianthus annuus* L.). *Trends in Applied Sciences Research*, 6: 977-991.
- El-Tayeb, M. A., and M. K. Ahmed, 2007: Apoplastic protein pattern, hydrolases and peroxidase activity of *Vicia faba* cultivars as influenced by drought. *Int. Journal of Agriculture Biol.* 9: 226–230.
- Esashi, Y., Matsuyama, S., Hoshina, M., Ashino, H., and Ishizawa, K., 1990. Mechanism of action of ethylene in promoting the germination of cocklebur seed. I. *Osmoregulation. Australian Journal of Plant Physiology.* 17: 537-550.
- Farhoudi, R., and Sharifzadeh, F. 2006. The effects of NaCl priming on salt tolerance in canola (*Brassica napus* L.) seedlings grown under saline conditions. *Indian Journal of Crop Science*, 1 (1–2), 74–78.
- Farooq, M., Aziz, T., Basra, S. M. A., Wahid, A., and Khaliq, A. 2008e. Exploring the role of calcium to improve the chilling tolerance in hybrid maize. *Journal of Agron Crop Science*, 194: 350–359.
- Farooq, M., Basra, S. M. A., Wahid, A., Ahmad, N., and Saleem, B. A. 2009. Improving the Drought Tolerance in Rice (*Oryza sativa* L.) by Exogenous Application of Salicylic Acid. *Journal Agronomy & Crop Science*, 195: 237-246.
- Farooq, M., Basra, S. M. A., Wahid, A., Cheema, Z. A., Cheema, M. A., and Khaliq, A. 2008f. Physiological role of exogenously applied glycinebetaine in improving drought tolerance of fine grain aromatic rice (*Oryza sativa* L.). *Journal of Agron Crop Science*, 194, 325–333.

- Farooq, M., S. M. A. Basra, H. Rehman, and B. A. Saleem, 2008b: Seed priming enhances the performance of late sown wheat (*Triticum aestivum* L.) by improving the chilling tolerance. *Journal of Agron Crop Science*, 194, 55–60.
- Farooq, M., T. Aziz, M. Hussain, H. Rehman, K. Jabran, and M. B. Khan, 2008a: Glycinebetaine improves chilling tolerance in hybrid maize. *Journal of Agron Crop Science*, 194, 152–160.
- Farooq, M., T. Aziz, S. M. A. Basra, M. A. Cheema, and H. Rehman, 2008c: Chilling tolerance in hybrid maize induced by seed priming with salicylic acid. *Journal of Agron Crop Science*, 194, 161–168.
- Farooq, M., T. Aziz, Z. A. Cheema, A. Khaliq, and M. Hussain, 2008d: Activation of antioxidant system by KCl treatments improves the chilling tolerance in hybrid maize. *Journal of Agron Crop Science*, 194, 438–448.
- Fatemi, H., Ameri, A., Mohammadi, S., Astaraee, A. 2013. Influence of salicylic acid and humic acid on salinity stress tolerance during seed germination of (*Lens culinaris* 157ork157). *Journal of Current Research in Science*, 1: 396-399.
- Fazeli, F., Ghorbanli, M., and Niknam, V. 2007: Effect of drought on biomass, protein content, lipid peroxidation and antioxidant enzymes in two sesame cultivars. *Biol. Plant* 51: 98–103.
- Finch-Savage, W. E., Dent, K. C., and Clark, L. J. 2004. Soak conditions and temperature following sowing influence the response of maize (*Zea mays* L.) seeds to on-farm priming (pre-sowing seed soak). *Field Crops Research*, 90: 361–374.
- Finnerty, T. L., Zajicek, J. M., and Hussey, M. A. 1992. Use of seed priming to bypass stratification requirements of three *Aquilegia* species. *HortScience*, 27: 310–313.
- Foti, S., Cosentino, S. L., Patane, C., and Dagosta, G. M. 2002. Effect of osmoconditioning upon seed germination sorghum (*Sorghom bicolor* L.) Moench under low temperatures. *Seed Science and technol*, 30: 521-533.
- Foyer, C. H., and Fletcher, J. M. 2001: Plant antioxidants: colour me healthy. *Biologist*, 48: 115–120.

- Frett, J. J., and Pill, W. G. 1995. Improved seed performance of four fescue species with priming. *Journal of Turf. Mngmnt*, 1: 13–31.
- Fu, J. R., Lu, X. H., Chen, R. Z., Zhang, B. Z., Liu, Z. S., Li, Z. S., and Cai, D. Y. 1988. Osmoconditioning of peanut (*Arachis hypogaea* L.) seeds with PEG to improve vigour and some biochemical activities. *Seed Science Technol*, 16, 197–212.
- Fujikura, Y., Kraak, H. L., Basra, A.s., Karssen, C. M. 1993. Hydropriming a simple and inexpensive priming method. *Journal of Seed Science and Technology*, 21: 639-642.
- Gallardo, K., Job, C., Groot, S. P. C., Puype, M., Demol, H., Vandekerekhove, J., and Job, D. 2001. Proteomic analysis of Arabidopsis seed germination and priming. *Plant Physiol*, 126: 835–848.
- Garcia, F. C., Jimenez, L. F., and Vezquez, R. J. M. 1995. Biochemical and cytological studies on osmoprimed maize seeds. *Seed Science Research*, 5, 15–23.
- Ghasemi-golezani, K., Chadordooz-jeddi, A., Nasrullahzade, S. and Moghaddam, M. 2010. Influence of hydro-priming duration on field performance of pinto bean (*Phaseolus vulgaris* L.) cultivars. *African journal of Agriculture Research*, 5: 893-897.
- Ghassemi-Golezani, K., Aliloo, A. A., Valizadeh, M., and Moghaddam, M. 2008. Effects of hydro and osmo-priming on seed germination and field emergence of lentil (*Lens culinaris* Medik.). *Not. Bot. Hort. Agrobot. Cluj*, 36: 29–33.
- Ghassemi-Golezani, K., and Esmaeilpour, B. 2008. The effect of salt priming on the performance of differentially matured cucumber (*Cucumis sativus*) seeds. *Not.Bot. Hort. Agrobot. Cluj*. 36 (2), 67–70.
- Ghiyasi, M., Abbasi Seyahjani, A., Tajbakhsh, M., Amirnia, R., and Salehzadeh, H. 2008. Effect of osmopriming with polyethylene glycol (8000) on germination and seedling growth of wheat (*Triticum aestivum* L.) seeds under salt stress. *Research Journal of Biological Sciences*, 3: 1249–1251.
- Guillermo, D. A., Pedersen, P., Hartzler, R. G. 2009. Soybean seeding rate effects on weed management. *Weed Technology*, 23:17-22.

- Gumiuski, S., and Głminska, Z. 1953. Studies on the mechanism of the activity of humus on plants. *Acta Soc. Bot. Poloniae*, 22: 45-54.
- Habdas, H., Szafirowska, A., and Sokolowska, A. 2000. Cytological and physiological effects of matricconditioning on low viable cucumber seed germination. *Acta Hort.* 517: 113–120.
- Hamayun, M., Khan, S. A., Khan, A. L., Tang, D. S., Hussain, J., Ahmad, B., Anwar, Y., Lee, I. J. 2010. Growth promotion of cucumber by pure cultures of gibberellin-producing *Phoma* sp.GAH7. *World J Microbiol Biotechnol*, 26: 889–894.
- Hardegree, S. P. 1996. Optimization of seed priming treatments to increase low-temperature germination rate. *Journal of Range Mngmnt.* 49, 87–92.
- Harris, D. 2006. Development and testing of ‘on-farm’ seed priming. *Advan. Agron.* 90: 129-178.
- Harris, D., A. Joshi, P. A. Khan, P. Gothkar and P. S. Sodhi. 1999. On-farm seed priming in semi arid agriculture: Development and evaluation in maize, rice and chickpea in India using participatory methods. *Experimental Agriculture* 35: 15-29.
- Harris, D., Raghuwnashi, B. S., and Gangwar, J. S. 2001. Participatory evaluation by farmers of on-farm seed priming in wheat in India, Nepal and Pakistan. *Exp. Agric.* 37: 403-415.
- Harris, D., Rashid, A., and Miraj, G. 2008. On-farm seed priming with zinc in chickpea and wheat in Pakistan. *Plant soil* 306: 3-10.
- Harris, D., Rashid, A., Miraj, G., Arif, M. and Shah, H. 2007. On-farm seed priming with zinc sulphate solution-A cost-effective way to increase the maize yields of resource-poor farmers. *Field Crops. Research*, 102: 119-127.
- Harrison, J. G. 1973. Localization of damage incurred during water imbibition by *Pisum sativum* and *Zea mays* seeds, as revealed by the topographic tetrazolium test. *Hort. Research*, 13: 119–124.
- Hasegawa, P. M., R. A. Bressan, J. K. Zhu, and H. J. Bohnert, 2000: Plant cellular and molecular responses to high salinity. *Annual Review of Plant Physiology and Plant Molecular Biology*, 51: 463–499.

- Hays, H. B. 1989. Humic substances II: In search of structure. Wiley, New York.
- Hegarty, T. W. 1970. The possibility of increasing field establishment by seed hardening. *Hort Res*, 10: 59–64.
- Helsel, D. G., Helsel, Z. R., and Minor, H. C. 1986. Field studies on osmoconditioning soybeans. *Field Crops Research*, 14: 291–297.
- Hembree, K. J., and Norris, R. F. 2005. Sugar beet integrated weed management. UC ANR, Publication 3469 University of California, Davis, U. S. A.
- Horvath, E., Pal, M., Szalai, G., Paldi, E., and Janda, T. 2007. Exogenous 4-hydroxybenzoic acid and salicylic acid modulate the effect of short-term drought and freezing stress on wheat plants. *Biol. Plant* 51: 480–487.
- Hsu, C. C., Chen, C. L., Chen, J. J., and Sung, J. M. 2003. Accelerated aging-enhanced lipid peroxidation in bitter melon seeds and effects of priming and hot water soaking treatments. *Scient. Hort.* 98: 201–212.
- Huang, Y.-M., Wang, H.-H., and Chen, K.-H. 2002. Application of the seed priming treatments in spinach (*Spinacia oleracea* L.) production. *J. Chinese Soc. Hort. Science*, 48: 117–123.
- Iqbal, M., and Ashraf, M. 2007. Seed treatment with auxins modulates growth and ion partitioning in salt-stressed wheat plants. *Journal of Integr. Plant Biol.* 49: 1003–1015.
- Iqbal, M., Ashraf, M. 2005. Changes in growth, photosynthetic capacity and ionic relations in spring wheat (*Triticum aestivum* L.) due to presowing seed treatment with polyamines. *Plant Growth Regul.* 46: 19–30.
- Jalali, A. H., and Salehi, F. 2013. Sugar beet yield as affected by seed priming and weed control. *Archives of Agronomy and Soil Science*, 59: 281–288.
- Janda, T., Szalai, G., Tari, T., and Paldi, E. 1999: Hydroponic treatment with salicylic acid decreases the effects of chilling injury in maize (*Zea mays* L.) plants. *Planta*, 208: 175–180.
- Jett, L. W., Welbaum, G. E., and Morse, R. D. 1996. Effects of matric and osmotic priming treatments on broccoli seed germination. *J. Amer. Soc. Hort. Sci.* 121, 423–429.

- Jett, L. W., Welbaum, G. E., O'Dell, C. R., and Morse, R. D. 1995. Does primed seed improve stand establishment and yield of broccoli? *HortTechnol.* 5: 314–317.
- Jie, L., Gong She, L., Dong Mei, O., Fang Fang, L., and En Hua, W. 2002. Effect of PEG on germination and active oxygen metabolism in wildrye (*Leymus chinensis*) seeds. *Acta Prataculturae Sinica*, 11: 59–64.
- Job, C., Kersulec, A., Ravasio, L., Chareyre, S., Pépin, R. and Job, D. 1997. The solubilization of the basic subunit of sugarbeet seed 11-S globulin during priming and early germination. *Seed Science Research*, 7: 225–243.
- Juraimi, A. S., Anwar, Md. P., Selamat, A., Puteh, A., and Man, A. 2012. The influence of seed priming on weed suppression in aerobic rice. *Pakistan Journal of Weed Science Research*, 18: 257-264.
- Jyotsna, V., and Srivastava, A. K. 1998. Physiological basis of salt stress resistance in pigeonpea (*Cajanus cajan* L.) - II. Pre-sowing seed soaking treatment in regulating early seedling metabolism during seed germination. *Plant Physiol. Biochem.* (New Delhi) 25: 89–94.
- Kadiri, M., and Hussaini, M. A. 1999. Effect of hardening pretreatments on vegetative growth, enzyme activities and yield of *Pennisetum americanum* and *Sorghum bicolor*. *Global J. Pure Appl. Sci.* 5: 179–183.
- Katembe, W. J., Ungar, I. A., and Mitchell, J. P. 1998. Effect of salinity on germination and seedling growth of two *Atriplex* species (Chenopodiaceae). *Ann. Bot.* 82: 167–175.
- Kaur, S., Gupta, A. K., and Kaur, N. 2005. Seed priming increases crop yield possibly by modulating enzymes of sucrose metabolism in chickpea. *J. Agron. Crop Sci.* 191: 81–87.
- Khalil, S. K., Rehman, A., Khan, A. Z., Khalil, I. H., and Rehman, S. 2003. Osmo-conditioning seed of mungbean varieties improve germination. *Pak. J. Sci. Technol*, 1: 13-21.
- Khan, A. A., Maguire, J. D., Abawi, G. S., and Ilyas, S. 1992. Matricconditioning of vegetable seeds to improve stand establishment in early field plantings. *J. Amer. Soc. Hort. Sci.* 117: 41–47.

- Khan, A. A., Szafirowska, A., Satriyas, I., and Ptasznik, W. 1995. Presowing seed conditioning to improve stand establishment and yield of vegetables. *J. Korean Soc. Hort. Sci.* 36: 438–451.
- Khodary, S. E. A. 2004: Effect of salicylic acid on the growth, photosynthesis and carbohydrate metabolism in salt-stressed maize plants. *Int. J. Agric. Biol.* 6: 5–8.
- Korkmaz, A., and Korkmaz, Y. 2009. Promotion by 5-aminolevulinic acid of pepper seed germination and seedling emergence under low-temperature stress. *Sci. Hortic.* 119: 98–102.
- Kostrej, A, Repka, J. 1993. Quantitative in dictators of growth production processes and yield formation of sugar beet. *Rostlinna-Vyroba.*; 39: 1077-1089.
- Kratsch, H. A., and R. R. Wise, 2000: The ultrastructure of chilling stress. *Plant Cell Environ.* 23: 337–350.
- Kumar, S. G., Mattareddy, A., and Sudhakar, C. 2003: NaCl effects on proline metabolism in two high yielding genotypes of mulberry (*Morus alba* L.) with contrasting salt tolerance. *Plant Sci.* 165, 1245–1251.
- Lanteri, S., Kraak, H. L., De Vos, C. H., and Bino, R. J. 1993a. Effects of osmotic preconditioning on nuclear replication activity in seeds of pepper (*Capsicum annuum* L.). *Physiol.Plant.* 89: 433–440.
- Lanteri, S., Nada, E., Belletti, P., Quagliotti, L., and Bino, R. J. 1993b. Effects of controlled deterioration and osmoconditioning on germination and nuclear replication in seeds of pepper (*Capsicum annuum* L.). *Ann. Bot.* 77: 591–597.
- Lanteri, S., Saracco, F., Kraak, H. L., and Bino, R. J. 1994. The effects of priming on nuclear replication activity and germination of pepper (*Capsicum annuum*) and tomato (*Lycopersicon esculentum*) seeds. *Seed Science Research*, 4: 81–87.
- Leprince, O., Harren, F. J. M., Buitink, J., Alberda, M., and Hoekstra, E. A. 2000. Metabolic dysfunction and unabated respiration precede the loss of membrane integrity during dehydration of germinating radicles. *Plant Physiol*, 122, 597–608.

- Lin, J. M., and Sung, J. M. 2001. Pre-sowing treatments for improving emergence of bitter gourd seedlings under optimal and sub-optimal temperatures. *Seed Science Technol.* 29, 39–50.
- Liu, C., and Cooper, R. J. 2000. Humic substances influence creeping bentgrass growth. *Golf Course Management*, 49-53.
- Liu, X., Xing, D., Li, L., and Zhang, L. 2007. Rapid deterioration of seed vigour based on the level of superoxide generation during early imbibition. *Photochem Photobiol Sci* 6:767–774
- Mackowiak, C. L., Grossl, P. R., and Bugbee, B. G. 2001. Beneficial effects of humic acid on micronutrient availability to wheat. *Soil Soc.Am.J.*, 65: 1744-1750.
- Madakadze, I. C., Prithiviraj, B., Madakadze, R. M., Stewart, K., Peterson, P., Coulman, B. E., and Smith, D. L. 2000. Effect of preplant seed conditioning treatment on the germination of switchgrass (*Panicum virgatum* L.). *Seed Sci. Technol.* 28, 403–411.
- Maestrini, C., F. Fontana, M. Donatelli, G. Bellocchini and S. Poggiolini. 2004. A frame to model specific leaf area in sugar beet. *Proceedings of the 8thESA Congress*, pp. 301-302.
- Martin, B. A., Cerwick, S. F., Reding, L. D. 1991. Physiological basis for imbibition of maize seed germination by flooding. *Crop Science*, 31: 1052–1057.
- Mazor, L., Perl, M., and Negbi, M. 1984. Changes in some ATP-dependent activities in seeds during treatment with polyethylene glycol and during the redrying process. *J. Exp. Bot.* 35: 1119–1127.
- McDonald, M. B. 2000. Seed priming. In “Seed Technology and its Biological Basis” (Eds. M. Black and J. D. Bewley). SheYeld Academic Press Ltd., SheYeld.
- Mei, Y. Q., and Song, S. Q. 2008. Cross-tolerance is associated with temperature and salinity stress during germination of barley seeds. *Seed Sci.Technol.* 36: 689–698.
- Metwally, A., Finkmemeier, I., Georgi, M., and Dietz, K. J. 2003. Salicylic acid alleviates the cadmium toxicity in barley seedlings. *Plant Physiol.* 132, 272–281.
- Michel, B. E., Kauffmann, M. R. 1973. The osmotic potential of polyethylene glycol 6000. *Plant Physiol* 51:914–916

- Min, T. G., and Seo, B.-M. 1999. Optimum conditions for tobacco seed priming by PEG 6000. *Korean J. Crop Sci.* 44, 263–266.
- Moradi, A., and Younesi, O. 2009. Effects of Osmo- and Hydro-priming on Seed Parameters of Grain Sorghum (*Sorghum bicolor* L.). *Australian Journal of Basic and Applied Sciences*, 3: 1696-1700.
- Munne-Bosch, S., and J. Penuelas, 2003: Photo and antioxidative protection, and a role for salicylic acid during drought and recovery in field-grown *Phillyrea angustifolia* plants. *Planta*, 217: 758–766.
- Murungu, F. S., Chiduzo, C., Nyamugafata, P., Clark, L. J., Whalley, W. R. 2004. Effect of on-farm seed priming on emergence, growth and yield of cotton and maize in a semi-arid area of Zimbabwe. *Exp. Agric.* 40, 23–36.
- Mylonas, V. A., and McCants, C. B. 1980. Effects of humic and fulvic acids on growth of tobacco. *Plant and Soil*, 54: 485–490.
- Nabi, G., Mullins, C. E., Montemayor, M. B., and Akhtar, M. S. 2001. Germination and emergence of irrigated cotton in Pakistan in relation to sowing depth and physical properties of the seedbed. *Soil Till. Res.* 59: 33–44.
- Nakaune, M., Hanada, A., Yin, Y.-G., Matsukura, C., Yamaguchi, S., and Ezura, H. 2012. Molecular and physiological dissection of enhanced seed germination using short-term low-concentration salt seed priming in tomato. *Plant Physiol. Biochem.* 52: 28–37.
- Nambara, E., Okamoto, M., Tatematsu, K., Yano, R., Seo, M., and Kamiya, Y. 2010. Absciscic acid and the control of seed dormancy and germination. *Seed Sci. Res.* 20: 55–67.
- Nardi, S., Pizzeghello, D., Muscolo, A. and Vianello, A. 2002. Physiological Effects of Humic Substances on Higher Plants. *Soil Biology and Biochemistry*, 34: 1527-1536
- Nascimento, W. M., CantliVe, D. J., and Huber, D. J. 2001. Endo-beta-mannanase activity and seed germination of thermosensitive and thermotolerant lettuce genotypes in response to seed priming. *Seed Sci. Res.* 11: 255–264.

- Ni, H., Moody, K., Robles, R. P., Paller, E. C., and Lales, J. S. 2000. *Oryza sativa* plant traits conferring competitive ability against weeds. *Weed Science*, 48: 200-204
- Nikbakht, A., Kafi, M., Babalar, M., Xia, Y. P., Luo, A., and Etemadi, N-a. 2008. Effect of humic acid on plant growth, nutrient uptake, and postharvest life of gerbera. *Journal of Plant Nutrition*, 31: 2155–2167.
- Niranjan Raj, S., Shetty, N. P., and Shetty, H. S. 2004. Seed bio-priming with *Pseudomonas fluorescens* isolates enhances growth of pearl millet plants and induces resistance against downy mildew. *Int J Pest Manag* 50:41–48
- Ober E.S., C.J.A. Clark, M. Lebloa, A. Royal, K.W. Jaggard and J.D. Pidgeon. 2004. Assessing the genetic resources to improve drought in sugar beet. Agronomic traits of diverse genotypes under droughted and irrigated conditions. *Field Crops Research*, 90:213-234.
- Omidi, H., Sorosh Zadeh, A., Salehi, A., and Ghezli, F. D. 2005. Evaluation osmo-priming pre-soaking on rape –seed seed germination. *Agri Sci Tech*. 19: 125- 136.
- Özbingöl, N., Corbineau, F. and Côme, D. 1998. Responses of tomato seeds to osmoconditioning as related to temperature and oxygen. *Seed Science Research*, 8: 377–384.
- Parera, C. A., and Cantliffe, D. J. 1994. Pre-sowing seed priming. *Hort Rev* 16:109–141
- Passam, H. C., and Kakouriotis, D. 1994. The effects of osmoconditioning on the germination, emergence and early plant growth of cucumber under saline conditions. *Scient. Hort.* 57: 233–240.
- Patade, V. Y., Bhargava, S., and Suprasanna, P. 2009. Halopriming imparts tolerance to salt and PEG induced drought stress in sugarcane. *Agriculture, Ecosystems and Environment*, 134: 24–28.
- Piccolo A, Celano and G, Pietramellara G. 1993. Effects of fractions of coal-derived humic substances on seed germination and growth of seedlings (*Lactuca sativa* and *Lycopersicon esculentum*). *Bioferti Soil* 16:11-15.

- Pill, W. G., Frett, J. J., and Morneau, D. C. 1991. Germination and seedling emergence of primed tomato and asparagus seeds under adverse conditions. *HortScience*, 26: 1160–1162.
- Pinton, R., Cesco, S., Iacoletti, G., Astolfi S., and Varanini, Z. 1999. Modulation of NO₃-uptake by water-extractable humic substances: involvement of root plasma membrane H⁺ATPase. *Plant and soil*, 215: 155-161.
- Podlaski, S., Chrobak, Z., and Wyszowska, Z. 2003. Effect of parsley seed treatment on root yield. *Plant Cell Env.* 49: 213–217.
- Podlaski, S., Wzorek, H., and Chrobak, Z. 2002. The effect of maize seed priming on their vigour, growth and yield of plants. *Biuletyn Instytutu Hodowli i Aklimatyzacji Roslin*, 221: 93–103.
- Pollock, B.M. 1969. Imbibition temperature sensitivity of lima bean seeds controlled by initial seed moisture. *Plant Physiol.* 44: 907–911.
- Radhakrishnan, R., Khan, A. L., and Lee, I-J. 2013. Endophytic fungal pre-treatments of seeds alleviates salinity stress effects in soybean plants. *J Microbiol*, 51: 850–857.
- Ramezani, M., Rezaei Sokht-Abandani, R. 2013. Effects of osmopriming on lentil seed germination components in arid areas. *Technical Journal of Engineering and Applied Sciences*, 3: 2002-2006.
- Rashid, A., Harris, D., Hollington, P. A., and Rafiq, M. 2004. Improving the yield of mungbean (*Vigna radiata*) in the North West frontier province of Pakistan using on-farm seed priming. *Exp. Agric.* 40: 233-244.
- Roy, N. K. and Srivastava, A. K. 2000. Adverse effect of salt stress conditions chlorophyll content in wheat (*Triticum aestivum* L.) leaves and its amelioration through pre-soaking treatments. *Indian J. Agric. Sci.*, 70: 777-778.
- Rowse, H. R. 1991. Methods of priming seeds. UK, Patent No. 2192781.
- Sadeghian, S.Y., and Yavari, N. 2004. Effect of water deficit stress on germination and early seedling growth in sugar beet. *Journal of Agronomy and Crop Science*, 190: 138-144.

- Sallam, H. A. 1999. Effect of some seed-soaking treatments on growth and chemical components on faba bean plants under saline conditions. *Ann. Agric. Sci. (Cairo)* 44, 159–171.
- Sanchez, J. A., Munoz, B. C., Fresneda, J. 2001. Combine effects of hydrating hydration-dehydration and heat shock treatments on the germination of tomato, pepper and cucumber. *Seed Science and Technology*. 29: 691-697.
- Sanders, D. C., Ricotta, J. A., and Hodges, L. 1990. Improvement of carrot stands with plant biostimulants and fluid drilling. *HortScience*, 25: 181–183.
- Sarwar, N., Yousaf, S., and Jamil, F. F. 2006. Induction of salt tolerance in chickpea by using simple and safe chemicals. *Pak. J. Bot.* 38: 325–329.
- Saunders, P. 1998 .Enhancement of Seeding Growth. *British Sugar Beet Review*, 66, No 2, pp.38 – 40.
- Shakirova, F. M. 2007: Role of hormonal system in the manifestation of growth promoting and antistress action of salicylic acid. In “Salicylic Acid – A Plant Hormone” (eds. S. Hayat, and A. Ahmad). Springer, Dordrecht, the Netherlands.
- Sharif, M., Khattak, R. A., and Sarir, M. S. 2002. Effect of different levels of lignitic coal derived humic acid on growth of maize plants. *Communication in Soil Science and Plant Analysis*, 33: 3567–3580.
- Sharma, P. K., Ingram, K. T., and Harnpichitvitaya, D. 1995. Subsoil compaction to improve water use efficiency and yields of rainfed lowland rice in coarse-textured soil. *Soil Till. Res.* 36: 33–44.
- Shehata MM, Azer SA, Mostafa SN. 2000 The effect of soil moisture on some sugar beet varieties. *Egyptian J. Agric. Res*, 78 (3): 1141-1160.
- Singh, B., and Usha, K. 2003 Salicylic acid induced physiological and biochemical changes in wheat seedlings under water stress. *Plant Growth Regul.* 39, 137–141.
- Singh, G., Gill, S. S., and Sandhu, K. K. 1999. Improved performance of muskmelon (*Cucumis melo*) seeds with osmoconditioning. *Acta Agrobot.* 52, 121–126.

- Sivritepe, H. O., and Dourado, A. M. 1995. The effect of priming treatments on the viability and accumulation of chromosomal damage in aged pea seeds. *Ann. Bot.* 75, 165–171.
- Small, J. G. C., and Gutterman, Y. 1992. A comparison of thermo- and skotodormancy in seeds of *Lactuca serriola* in terms of induction, alleviation, respiration, ethylene and protein synthesis. *Plant Growth Regul.* 11: 301–310.
- Smith, V. L. 1996. Enhancement of snap bean emergence by *Gliocladium virens*. *HortScience*, 31: 984–985.
- Smok, M. A., Chojnowski, M., Corbineau, F., and Côme, D. 1993. Effects of osmotic treatment on sunflower seed germination in relation with temperature and oxygen. In “Fourth international workshop on seeds. Basic and applied aspects of seed biology” (Eds. D. Côme, and F. Corbineau). Paris, ASFIS.
- Snapp, S., Price, R. and Morton, M. 2008. Seed priming of winter annual cover crops improves germination and emergence. *Agro. J.* 100:1506-1510.
- Steven, R. W., and Wiese, A. 1976. Competition of annual weeds and sugar beets. *Journal of American Society of Sugar Beet Technologists*, 19: 125-129.
- Stevenson, F. J. 1994. Humus Chemistry: Genesis, Composition, Reactions. John Wiley & Sons, New York.
- Strogonov, B. P. 1964. Practical means for increasing salt tolerance of plants as related to type of salinity in the soil. In “Physiological Basis of Salt Tolerance of Plants” (Eds. A. PoljakoV-Mayber and A. A. Meyer), pp. Israel Program for Scientific Translations Ltd., Jerusalem.
- Subedi, K. D., Mal, B. 2005. Seed priming does not improve corn yield in a humid temperate environment. *Agron. J.* 97:211–218.
- Sung, Y., Cantliffe, D. J., Nagata, R. T., and Nascimento, W. M. 2008. Structural changes in lettuce seed during germination at high temperature altered by genotype, seed maturation temperature, and seed priming. *J. Am. Soc. Hortic. Sci.* 133: 300–311.

- Suzuki, H., and Khan, A. A. 2001. Effective temperatures and duration for seed humidification in snapbean (*Phaseolus vulgaris* L.). *Seed Sci. Technol.* 28: 381–389.
- Tahir, M. M., Khurshid, M., Khan, M. Z., Abbasi, M. K., and Kazmi, M. H. 2011. Lignite-Derived Humic Acid Effect on Growth of Wheat Plants in Different Soils. *Pedosphere*, 21: 124-131.
- Tan, K. H. 2003. Humic Matter in Soil and Environment. Marcel Dekker, New York.
- Tasgn, E., Atici, Ö., and Nalbantoglu, B. 2003: Effect of salicylic acid on freezing tolerance in winter wheat leaves. *Plant Growth Regul.* 41, 231–236.
- Taylor, A. G., Harman, G. E. 1990. Concepts and technologies of selected seed treatments. *Ann. Rev. Phytopathol.* 28, 321–339.
- Thangavelu, R., and Ramabadran, R. 1992. Effect of humic acid on severity of rice blast. *Int. Rice Res. News letter*, 17: 3-18
- Thornton, J. M., and Powell, A. A. 1992. Short term aerated hydration for the improvement of seed quality in Brassica oleracea L. *Seed Sci. Res.* 2, 41–49.
- Toorop, P. E., van Aelst, A. C., and Hilhorst, W. M. 1998. Endosperm cap weakening and endo- β -mannanase activity during priming of tomato (*Lycopersicon esculentum* cv. Moneymaker) seeds are initiated upon crossing a threshold water potential. *Seed Sci. Res.* 8: 483–492.
- Turkman, O., Demir, S., Sensoy, S., Dursun, A. 2005. Effect of Arbuscular Mycorrhizal Fungus and Humic Acid on the seedling development and nutrient content of Pepper grown under saline Soil conditions. *J of Bio Sci*, 5: 565-574.
- Ucan K, Gencoglan C. 2004. The effect of water deficit on yield and yield components of sugarbeet. *Turk. J. Agri. For.* 28: 163-172.
- Vafaei, S., Razmjoo, J., and Karimmojeni, H. 2013. Weed control in sesame (*Sesamum indicum* L.) using integrated soil applied herbicides and seed hydro-priming pretreatment. *Journal of Agrobiolgy*, 30: 1-8.

- van der Geest, A. H. M. 2002. Seed genomics: germinating opportunities. *Seed Sci. Res.* 12: 145–153.
- Van der Wolf, J. M., Birnbaum, Y., van der Zouwen, P. S., and Grrot, S. P. C. 2008. Disinfection of vegetable seed by treatment with essential oils, organic acids and plant extracts. *Seed Sci Tech*, 36:76–88.
- Van Swaaij, A. C. P. M., W. Heijbroek, and J. L. Basting, 2001: Testing and improving seed vigour in sugar beet. Proceedings of the 64th IIRBCongress, 26–27 June, Bruges, pp. 237—246.
- Vaughan, D. 1974. A possible mechanism for humic acid action on cell elongation in root segments of *Pisum sativum* under aseptic conditions. *Soil Biology and Biochemistry*, 6:241–247.
- Vomucka I. and J. Pospisilova. 2003. Rehydration of sugar beet plant after water stress. *BiologyaPlantarum*, 46 (1):57-62.
- Wahid, A., Perveen, M., Gelani, S., and Basra, S. M. A. 2007. Pretreatment of seed with H₂O₂ improves salt tolerance of wheat seedlings by alleviation of oxidative damage and expression of stress proteins. *J. Plant Physiol.* 164: 283–294.
- Wahid, A., Sehar, S., Perveen, M., Gelani, S., Basra, S. M. A., and Farooq, M. 2008. Seed pretreatment with hydrogen peroxide improves heat tolerance in maize at germination and seedling growth stages. *Seed Sci. Technol.* 36: 633–645.
- Wang, H. Y., Chen, C. L., and Sung, J. M. 2003. Both warm water soaking and matricconditioning treatments enhance anti-oxidation of bitter melon seeds germinated at sub-optimal temperature. *Seed Sci. Technol.* 31: 47–56.
- Waqas, M., Ahmad, B., Arif, M., Munsif, F., Khan, A. L., Amin, M., Kang, S-M., Kim, Y-H., and Lee, I-J. 2014. Evaluation of humic acid application methods for yield and yield components of mungbean. *American Journal of Plant Sciences*, 5: 2269-2276.
- Warren, J. E., and Bennett, M. A. 1997. Seed hydration using the drum priming system. *HortSci.* 32, 1220–1221.

-
- Waseem, M., Athar, H. U., and Ashraf, M. 2006. Effect of salicylic acid applied through rooting medium on drought tolerance of wheat. *Pak. J. Bot.*, 38: 1127–1136.
- Weitbrecht, K., Müller, K., and Leubner-Metzger, G. 2011. First off the mark: early seed germination. *J. Exp. Bot.* 62: 3289–3309.
- Whalley, W. R., Ober, E. S., and Jenkins, M. 2013. Measurement of the matric potential of soil water in the rhizosphere. *J Exp Bot* 64:3951–3963
- Xiao-Fang, S., QingSong, Z., and YouLiang, L. 2000. Regulations of salt tolerance of cotton plants at seedling emergence stage by soaking seeds in Pix (DPC) and CaCl₂ solutions. *Jiangsu J. Agric. Sci.* 16, 204–207.
- Yang, Y., and Wang, X. 2005. Changes of plasma membrane H⁺ ATPase activities of Glycine max seeds by PEG treatment. *Forestry Stud. China*, 7: 7–11.
- Zhao, D. L., Bastiaans, L., Atlin, G. N., Spiertz, J. H. J. 2007. Interaction of genotype × management on vegetative growth and weed suppression of aerobic rice. *Field Crops Res*, 100: 327-340
- Zhuo, J., Wang, W., Lu, Y., Sen, W., Wang, X. 2009. Osmopriming-regulated changes of plasma membrane composition and function were inhibited by phenylarsine oxide in soybean seeds. *J. Integr. Plant Biol*, 51: 858–867.

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