

Curriculum Vitae

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Personal details

Name: Reza Aghnoum

Nationality: Iranian

Date of Birth: June 22, 1972

Marital Status: Married , two child

University education

B.Sc. in Plant Protection ,1991-1995, Ferdowsi University of Mashhad, Iran, with Honours (Grade Point Average=17.50 out of 20.0)

M.Sc. in Plant Pathology, 1995-1998, Ferdowsi University of Mashhad, Iran. with Honours (Grade Point Average=18.24 out of 20.00)

PhD in Plant Breeding (Genetics of plant disease resistance). 2005-2009, Department of Plant Breeding, Wageningen University, The Netherlands

Postdoctoral position in Genomics of Plant-Pathogen interactions 2009-2010, Department of Plant Breeding, Wageningen University. ERA-NET Plant Genomics Project: Integrative genomic and genetic analysis of non-host resistance across *Triticeae* species.

Employment background

From April 1998 to the present, Plant Pathologist-breeder, Member of Scientific Board, Department of Seed and Plant Improvement, Agricultural and Natural Resources Research Center of Khorasan Razavi, Mashhad, Iran

Published papers in peer-reviewed journals (2007-2013)

- 1- **Aghnoum, R.**, Niks, R.E. (2012). Compatible *Puccinia hordei* infection in barley induces basal defense to subsequent infection by *Blumeria graminis*. *Physiological and Molecular Plant Pathology*. 77:17-22. (Impact factor= 1.98).
- 2-**Aghnoum, R.**, Niks, R.E. (2011). Transgressive segregation for very low and high levels of basal resistance to powdery mildew in barley. *Journal of Plant Physiology*. 168: 45-50. (Impact factor= 2.77).
- 3-**Aghnoum, R.**; Marcel, T.C.; Johrde, A.; Pecchioni, N.; Schweizer, P.; Niks, R.E. (2010). Basal host resistance of barley to powdery mildew: connecting quantitative trait loci and candidate genes. *Molecular Plant-Microbe Interactions*. 23:91-102.(Impact factor= 4.45).
- 4- **Aghnoum, R.**; Niks, R.E. (2010). Specificity and levels of nonhost resistance to nonadapted *Blumeria graminis* forms in barley. *New Phytologist*. 185: 275- 284. (Impact factor= 6.37).
- 5- Marcel, T.C., **Aghnoum, R.**, Durand, J., Varshney, R.K., Niks, R.E. (2007). Dissection of the barley 2L1.0 region carrying the 'Laevigatum' quantitative resistance gene to leaf rust using near isogenic lines (NIL) and subNIL. *Molecular Plant-Microbe Interactions*.20:1604-1615. (Impact factor= 4.45).
- 6- **Aghnoum, R.**, Bvindi, C., Menet, G., D'hoop, B., Nunes Maciel, J. L., Kema, G.H.J., Niks, R.E. (2014). Genetic basis of resistance in barley against wheat and rice infecting forms of *Magnaporthe oryzae* (In preparation for submission to Euphytica).
- 7- **Aghnoum, R.**, Bvindi, C., Menet, G., D'hoop, B., Nunes Maciel, J. L., Kema, G.H.J., Niks, R.E. (2014).Host status of barley to *Magnaporthe oryzae* pathotypes infecting rice, wheat and pearl millet. (In preparation for submission to European journal of plant pathology).

Published papers in Iranian peer-reviewed journals and full papers

in proceedings of scientific congress

- ۱- اقنوم، ر.، فلاحتی رستگار، م.، جعفرپور، ب. ۱۳۷۸. مقایسه کنترل شیمیایی و بیولوژیکی بیماری پژمردگی فوزاریومی زیره سبز (*Fusarium oxysporum* f.sp. *cumini*). مجله علمی- پژوهشی علوم کشاورزی ایران - دانشگاه تهران. ۳۰ (۳) ۶۱۹-۶۲۹:
- ۲- نظری، ک.، ترابی، م.، دهقان، م.ع.، اقنوم، ر.، احمدیان مقدم، م.ص.، حسین فلاح، ع. ۱۳۷۹. وضعیت بیماری زایی و عکس العمل ارقام اصلاح شده و رگه های پیشرفته گندم نسبت به زنگ زرد *Puccinia striiformis* در استان های شمالی ایران. مجله علمی پژوهشی به نژادی نهال و بذر. ۱۶ (۴) ۳۹۳-۴۲۴
- ۳- پاتپور، م.، ترابی، م.، افشاری، ف.، اقنوم، ر.، دهقان، م.ع.، دادرزایی، س.ط.، احمدیان مقدم، م.ص. ۱۳۸۴. فاکتورهای بیماریزایی عامل سفیدک پودری جو در برخی مناطق کشور و تغییرات آن ها در سال های ۸۱ - ۱۳۷۹. مجله علمی پژوهشی به نژادی نهال و بذر. ۲۱ (۲) ۳۰۳-۳۱۳
- ۴- افشاری، ف.، ترابی، م.، نظری، ک.، ملیحی پور، ع.، مردوخی، و.، رجایی، س.، دادرزایی، س.ط.، دهقان، م.ع.، هوشیار، ر.، نصرالهی، م.، چایچی، م.، صفوی، ص.ع.، کربلایی خیاوی، ح.، احمدیان مقدم، م.ص.، اقنوم، ر. ۱۳۸۴. فاکتورهای بیماریزایی عامل بیماری زنگ زرد گندم (*Puccinia striiformis* f.sp. *tritici*) در چند منطقه ایران در سال های ۱۳۸۳-۱۳۸۱. مجله علمی پژوهشی به نژادی نهال و بذر ۲۱ (۳) ۳۵۷-۳۷۲
- ۵- جعفری، ح.، اقنوم، ر.، شواپتزر، پ.، و نیکس، ر. ۱۳۹۰، آنالیز ترانسکریپتوم (Transcriptome analysis) مقاومت میزبانی و غیر میزبانی در جو نسبت به قارچهای عامل زنگ برگگی. مقاله کامل در مجموعه مقالات اولین کنگره ملی علوم و فناوریهای نوین کشاورزی، زنجان، دانشگاه زنجان. ص. ۲۴۴-۲۴۸
- 6- **Aghnoum, R.**, Dehghan, M.A., Nikkhah, H.R., and Nazeri, M. (2014). Evaluation of partial resistance to powdery mildew in Elite lines and cultivars of barley by AUDPC. The First International & 13th Iranian Crop & Plant Breeding Sciences Congress, August 26-28 2014. Karaj, Iran.
- 7- **Aghnoum, R.**, Safavi, S.A., Dehghan, M.A., Sorkhi, B., and Sharifalhossaini, M. (2014). Identification of sources of powdery mildew and yellow rust resistance in barley. The First International & 13th Iranian Crop & Plant Breeding Sciences Congress, August 26-28 2014. Karaj, Iran w in Elite lines and cultivars of barley by AUDPC. The First International & 13th Iranian Crop & Plant Breeding Sciences Congress, August 26-28 2014. Karaj, Iran
- 8- Javan, F., **Aghnoum, R.** and Valizade, M.(2014). Identification of quantitative trait loci for resistance to Scald (*Rhynchosporium secalis*) in barley. The First International & 13th Iranian Crop & Plant Breeding Sciences Congress, August 26-28 2014. Karaj, Iran

9- Ezazi, M., **Aghnoum, R.** and Valizade, M.(2014). Identification of quantitative trait loci associated with some agronomical important traits in a population of barley by association mapping. The First International & 13th Iranian Crop & Plant Breeding Sciences Congress, August 26-28 2014. Karaj, Iran

International conference contributions (Oral and poster presentations)

(after 2007)

1- **Aghnoum, R.**, Safavi, S.A., Dalvand, M. and Atahosseini, M. (2014). Sources of yellow rust resistance in modern European barley cultivars and Iranian breeding lines. 2nd International Wheat Stripe Rust Symposium. Izmir, Turkey, 28 April - 1 May, 2014 (poster presentation)

2-Atahosseini, M., **Aghnoum, R.** and F.Afshari (2014). Yellow rust of wheat in north-eastern Iran: Current status of host resistance and pathogen virulence . 2nd International Wheat Stripe Rust Symposium. Izmir, Turkey, 28 April -1 May, 2014 (poster presentation).

3-Marcel, T. C., **Aghnoum R.**, Jafary H., Yeo F. K.S., Chalhoub B., and Niks R. E.(2009). A map-based cloning approach to unravel genes for basal resistance to biotrophic fungi in barley. 19th International Triticeae Mapping Initiative. 31 August – 4 September 2009. Clermont-Ferrand, France (Abstract).

4- **Aghnoum, R.** and Niks, R.E. (2009). Bgt: Experimental barley lines with susceptibility to wheat powdery mildew as a tool to study non-host resistance. 12th International Cereal Rusts and Powdery Mildews Conference, October 13-16, 2009 Antalya, Turkey- (oral presentation)

5- Niks, R.E., Jafary, H., **Aghnoum, R.** and Marcel. T.C_(2009). The Barley-Rusts and Mildews: Two Models to Study the Molecular Basis of Host Status of Plants to Specialized Pathogens. 12th International Cereal Rusts and Powdery Mildews Conference, October 13-16, 2009 Antalya, Turkey- (Abstract)

6- Douchkov, D., Johrde, A., Himmelbach, A., **Aghnoum, R.**, Niks, R. and Schweizer, P. (2009). Convergent Evidence for Genes Underlying Quantitative Powdery Mildew Resistance in Barley. 12th International Cereal Rusts and Powdery Mildews Conference, October 13-16, 2009 Antalya, Turkey- (Abstract)

7- **Aghnoum, R.**, Marcel. T.C., Jafary, H. and Niks, R.E. (2007). Genetic diversity for Quantitative resistance of barley against powdery mildew. Plant and Animal Genome XV Conference, January 13-17, 2007, San Diego, California, USA, (poster presentations)

8-**Aghnoum, R.**, Bvindi, C., Nunes Maciel, J., Kema, G.H.J. Niks, R.E. (2010). Host status and genetics of blast (*Magnaporthe oryzae*) resistance in barley. 1st International Workshop – Wheat Blast a Potential Global Threat to Wheat Production, May 3-6, 2010, Passo Fundo, Brazil , (poster presentation).

Final report of projects, since 2010 (As project leader)

- 1- **Aghnoum, R. (2012)**. Evaluation of powdery mildew resistance in Preliminary, Advanced and Elite lines of barley at adult plant stage. Seed and Plant Improvement Institute. pp 28.
- 2- **Aghnoum, R. (2014)**. Evaluation of some resistance sources of spring barley for yellow rust and powdery mildew diseases. Seed and Plant Improvement Institute. pp 36.
- 3- **Aghnoum, R. (2014)**. Evaluation of resistance to powdery mildew in Preliminary, Advanced, Elite lines and cultivars of barley at adult plant stage. Seed and Plant Improvement Institute. pp 37.

Supervision of PhD and M.Sc. students

- 1- Supervision of M.Sc. student, Mathieu Wident, thesis project entitled “Association mapping and genealogy study of genes for resistance to pathogens in barley”. Laboratory of Plant Breeding. Wageningen University. April 2007.
- 2- Supervision of M.Sc. student, Carol Nunurai Bvindi, thesis project entitled “Host status and genetic analysis of blast (*Magnaporthe oryzae*) resistance in barley”. Laboratory of Plant Breeding. Wageningen University. July 2010.
- 3- Supervision of M.Sc. student, M. Ezazi, thesis project entitled “Identification of Quantitative Trait Loci Associated with some Agronomical Important Traits in a Population of Barley by Association Mapping”. Faculty of Agricultural Engineering, Payame Noor University of Mashhad, December 2014.
- 4- Supervision of M.Sc. student, F. Javan, thesis project entitled “Study on Genetics of Scald (*Rhynchosporium secalis*) resistance in barley at seedling stage”. Faculty of Agricultural Engineering, Payame Noor University of Mashhad, December 2014.
- 5- Supervision of PhD candidate, H. Beheshtizade, thesis project entitled “Mapping genomic regions of morphological and physiological traits in Nure × Tremois doubled haploid population of barley under drought stress”. Faculty of Agriculture, University of Zabol, Since September 2014, in progress.
- 6- Supervision of PhD candidate, M. Jabbari, thesis project entitled “Association mapping of drought tolerance in barley”. Faculty of Agriculture, University of Zabol, Since September 2014, in progress.
- 7- Supervision of PhD candidate, M. Zare, thesis project entitled “Association mapping of loci controlling salt tolerance in barley (*Hordeum vulgare* L.)”. Sari University of Agricultural Sciences and Natural Resources, Since September 2014, in progress.

Teaching experience

Teaching Introductory Plant Pathology, Diseases of Vegetables and Fruit Crops, Islamic Azad University

Honors and awards

Distinguished researcher of Agricultural and Natural Resources Research Center of Khorasan Razavi in 2005

Contributions to wheat and Barley variety development

I contributed as a pathologist-breeder to the development of seven high-yielding and disease resistant cultivars of bread wheat (namely Toos, Pishtaz, Zareh, Orum, Mihan, Parsi and Sivand) and one barley cultivar (Bahman). Released by Seed and Plant Improvement Institute, Department of Cereal Research, Karaj, Iran 2002-2010.

Technical and specialized skills in genetics, molecular biology and plant pathology

1-Linkage analysis, QTL mapping, association mapping, candidate gene analysis and related softwares (like Joinmap, Map QTL, Map Chart, GGT (Graphical Genotyping))

2-Working with different molecular markers (e.g. SSR, AFLP, CAPS, dCAPS, SNP, SCAR) linked to a trait/gene of interest and conversion of DNA sequences to different PCR based molecular markers

3-Basic lab skills in molecular biology like DNA and RNA extraction, Agarose gel electrophoresis, elution of DNA fragments from gel

4- Designing a molecular breeding program, development of near isogenic lines (NILs) and marker assisted selection

5-Basic bioinformatics and internet resources in molecular biology, e.g. sequence analysis and alignment (BLAST, restriction maps; primer design, etc.) and database mining

6-Microarray gene expression analysis and related softwares like GeneSpring for analyzing expression data

7-Experience and skills in microscopy, histological analysis of plant-pathogen interactions, Applications of Phase Contrast and Fluorescent Microscopy

8-Laboratory and greenhouse skills related to multiplication and inoculation of plant-pathogenic fungi