

Keynote Forum



2nd Global summit on **Food Science and Nutrition**

October 30, 2021 | Webinar



Yu Fan, Jianping Cheng

Guizhou University, P.R. China

Genome-wide identification and expression analysis of the bhlh transcription factor family and its response to abiotic stress in sorghum [*Sorghum bicolor* (L.) Moench]

Statement of the Problem: Basic helix-loop-helix (BHLH) is a superfamily of transcription factors that is widely found in plants and animals and is the second largest transcription factor family in eukaryotes after myb. They have been shown to be important regulatory components in tissue development and many different biological processes. However, no systemic analysis of the BHLH transcription factor family has yet been reported in *Sorghum bicolor*.

Methodology & Theoretical Orientation: We conducted the first genome-wide analysis of the BHLH transcription factor family of *Sorghum bicolor* and identified 174 SBBHLH genes. Phylogenetic analysis of SBBHLH proteins and 158 *Arabidopsis thaliana* BHLH proteins was performed to determine their homology. In addition, conserved motifs, gene structure, chromosomal spread and gene duplication of SBBHLH genes were studied in depth. To further infer the phylogenetic mechanisms in the SBBHLH family, we constructed six comparative syntonic maps of *S. bicolor* associated with six representative species. Finally, we analyzed the gene-expression response and tissue-development characteristics of 12 typical SBBHLH genes in plants subjected to six different abiotic stresses. Gene expression during flower and fruit development was also examined.

Conclusion & Significance: This study is of great significance for functional identification and confirmation of the *S. bicolor* BHLH superfamily and for our understanding of the BHLH superfamily in higher plants.

Biography

Yu Fan focuses on the regulatory roles of transcription factor families in plant environmental adaptation and the conservation and utilization of crop germplasm resources. His research focuses on coarse grain crops such as buckwheat, sorghum and millet. The College of Agriculture of Guizhou University pays special attention to the improvement and supplement function of coarse grain nutrition for human health.

fandavi@163.com

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Ir. Dr. Norhashila Hashim

Universiti Putra Malaysia, Malaysia

Precision agriculture in food technology

Postharvest losses of fresh produce constitute the biggest portion of the total food losses in food chains globally. Studies indicated the extent of postharvest losses in fresh produce reaches up to 50% that equals to 1.2–2 billion tons around the world. These losses result largely from poor postharvest handling and technical limitations in adopting new technology. It is also mainly related to consumer behavior and strict safety policies as well as quality standard requirements. Baseline projections indicated that the total global consumption of fresh produce will nearly double from 2010 to 2050. However, the average per capita availability will only increase by about 40 percent. Thus, reducing losses is one of the leading global strategies for achieving sustainable food security. Precision agriculture (PA) offers promising solution and innovations with sophisticated technology that promotes efficient and better productivity. The innovations continue to evolve year by year to deal with many issues in postharvest losses that has opened doors for new practices and strategies, thereby increasing the production output and improving the production quality.

Biography

Ir. Dr. Norhashila Hashim is currently an associate professor and the head of department at the department of biological and agricultural engineering, faculty of engineering, University Putra Malaysia (UPM). She received her Ph.D. in biomechanical engineering from UPM in 2013. Apart from academic and research, she actively involved in professional bodies and societies, locally and internationally, to name a few; a professional engineer which is awarded by the Board of Engineers Malaysia, a chartered engineer by The Institution of Engineering and Technology (IET), UK; a corporate member of The Institution of Engineers Malaysia (IEM), a professional member of Malaysian Society of Agricultural Engineers (MSAE); a member of American Society of Agricultural and Biological Engineers (ASABE); a life member of Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEEES).

norhashila@upm.edu.my

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J. B. Athavale, Sean Clarke

MAV, India

How our diet affects our aura

Background: Studies show that the physical, mental and environmental implications of a vegetarian diet is more health-and-planet-friendly than a meat-based diet. However, along with these known consequences, does diet affect a person spiritually and if so, what are the ramifications?

Methodology: With 40 years of spiritual research experience, the team at the University has studied the process of creation and transfer of subtle energy with food and its spiritual impact on the consumers. This research has been conducted using modern aura-and-subtle-energy scanners along with the advanced sixth sense of its research team.

Key findings: Any type of food item, raw or cooked, emits subtle vibrations. Even the same type of food can emit different vibrations. These are determined by factors such as where the food is sourced from, the manner of preparation, the spiritual level and spiritual state of the cook along with the dominant thoughts and feelings he has while cooking. Once consumed, the subtle vibrations present in food permeate the entire body of the person.

It was found that eating meat had significantly higher levels of negative subtle vibrations as compared to a vegetarian diet. The experiments also showed that those who ate meat rapidly acquired a negative aura that could last for days. In addition, the manner of cutting and cooking vegetables along with the spiritual state of the cook had a significant impact on the food and the consumer.

Discussion: Adverse spiritual effects from eating spiritually impure food such as meat are not immediately apparent. However, they eventually do show up in the long run impacting one at the physical, psychological and spiritual levels. Doctors recommend a balanced diet; however, the ideal diet is that which has the necessary nutrients, enhances the spiritual positivity in a person and reduces negativity.

Biography

J. B. Athavale is the founder of MAV was formerly a renowned clinical hypnotherapist with 25 years of psychological research. Later his pioneering efforts in spiritual research for over 40 years, led Him to author over 300 books on various aspects of spirituality. He is the creator of the personality defect removal process for a happier life and which helps in providing the foundation for rapid spiritual growth.

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Padmshree Mudgal

University of Delhi, India

Assessment of Health Impact of food colorants using Zebra fish model system

There has been a steady increase in the demand for processed and visually appealing food, leading to the rise in the consumption of foods with artificial food colorants. Zebra fish embryo toxicity assays were performed with erythrosine and tartrazine, the two most commonly used artificial food colorants in candies and Indian sweets. Our study shows that 0.05% and above concentration of erythrosine and 0.5% and above concentration of tartrazine are embryo toxic in a time-dependent manner. Both erythrosine and tartrazine treated zebra fish embryos exhibited phenotypic and morphological developmental deformities.

The impact of erythrosine and tartrazine in inducing oxidative stress in zebra fish embryos was also assessed. Both erythrosine and tartrazine treated embryos showed significantly increased activity of Superoxide dismutase (SOD) enzyme. SOD mRNA transcripts in the treated embryos were also found to be significantly up regulated. These studies indicate that exposure to food colorants up-regulates cytoplasmic SOD transcription as an antioxidant defense to combat oxidative stress induced in zebra fish embryos.

Behavioral analysis using VLNOR (Visual Lateralization Novel Object Recognition) test which exploits the brain lateralization, to model learning and memory in zebra fish was also performed. It is based on the assumption that when the larvae are exposed to a novel object for the first time preference is given to the left eye for viewing the object. As larvae get familiarized with the object with memory formation there is a shift towards right eye preference to view the object on next encounter. Delay in learning and inhibition in memory retention was observed in tartrazine treated larvae.

Further studies need to be performed to re-asses the permitted levels of food additives considering their long-term effects on humans especially children.

Biography

Padmshree Mudgal has her expertise in using zebra fish model system in assessing the health impact of food additives and environmental pollutants. She has been exploring the impact at the molecular level studying the signaling pathways involved. Her interest also involves evaluating the therapeutic potential of traditional Indian medicine in various human diseases using zebra fish model system with a purpose to develop cheaper and safe alternative therapy protocols. She has a passion for teaching and has co-authored a book titled "Textbook in Membrane Biology", a springer publication in 2017 which has become very popular among undergraduate and postgraduate students. She is a recipient of many awards including the 'Teaching Excellence award for Innovation' by University of Delhi in 2015.

padmshree.m@gmail.com