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1. Who was your supervising tutor when you visited the University of Würzburg?

Prof. Dr Thomas Roitsch
Lehrstuhl fuer Pharmazeutische Biologie

2. We would be happy to get to know something about your academic/ professional career and it would be nice if you could describe your professional work in a few words.

Bioregulation of grain / seed filling in relation to C and N metabolism in cereals.

Control mechanisms of grain filling and improved grain productivity in cereals under normal and stressing environmental regimes have been investigated employing biochemical, physiological and biotechnological tools. A major focus of these studies has been to delineate the metabolic constraints involved in the mode of carbon nitrogen assimilation and their regulation by phytohormones. The imported sugars mainly in form of sucrose in grains is fastly converted to starch, besides generating keto acids for protein synthesis in cereals. Research with culturing detached ears of wheat, barley have clearly shown that sink (seed) carbon metabolism plays a key role in controlling dry matter accumulation and hence grain yield. This innovative culturing technique was employed for the first time in India mimicking *in vivo* grain filling conditions. Role of phytohormones in regulating the grain sink carbon and nitrogen metabolism has also been elucidated. The detailed kinetic parameters of peroxidase and superoxide dismutase and its relevance in heat tolerant genotypes of wheat have been worked out. Using enzymological and histochemical techniques, it was shown that amine oxidases are present in the tissues through which photosynthetic assimilates travel into the grain. The deposition of β 1-3 glucan was identified using confocal laser scanning microscopy and lignin (histochemically) in certain cells of developing wheat grain. Clones covering sequences of invertase gene were obtained by PCR on genomic DNA with reverse and forward primers designated according to database sequences of invertase. Two mapping populations staggering for heat tolerance trait (C 306 X PBW 534// PBW 534 and C 273 X PBW 343//PBW 343) were extensively characterized using membrane thermostability parameters, antioxidant enzymes, antioxidants and polyamines. Our results indicated that pre era tall traditional cultivars C-306 and C 273 genotypes posseses higher

membrane thermostability over high yielding PBW genotypes. Field performance in terms of yield and yield components were worked out using heat tolerance indices. The results obtained will help the biotechnologist and plant breeders in identifying beneficial genes/markers of high temperature tolerance targeted to produce superior wheat cultivars.

After DAAD fellowship our international publication with DAAD professor was:

Asthir B, Kaur S, Spoor W and **Roitsch T** (2010) Spatial and temporal dynamics of peroxidase and amine oxidase activity is linked to polyamines and lignin in wheat grains. **Biologia Plantarum** 54: 525-529.

3. What do you find most fascinating about the subject Euro-Indian Week?

Cultural growth or orientations are situation or site specific. No two places on earth can have exactly the same cultures for reasons of diverse influences. All cultures evolve over a long period of time and imbibe from other alien cultures. Gross fertilization of ideas and cultural exchanges make a strong case for free flow of ideas, men and material. This is what globalization achieves. Some countries on this planet earth were populated mainly by immigrants and their growth and resilience has prompted the other nations to open up immigrations. The great cultural melting points imbibe from everywhere. Population pressures are not that worrisome now and when the full potential of population is exploited, growth dynamics are different. The future critical resources the world over will be human resources. The competition to draw skilled human resources is going to increase manifold. Nations will be vying with each other to attract the best possible talent world over and the global village will come into shape.

4. What do you think about the importance of Alumni in terms of the cultural, academic and economic exchange?

Alumni plays a central role in coordinating various activities between two nations in facilitating diverse cultures to come closer. When two individuals from different countries interact there is vast exchange of ideas, skills, habits. This leads to high speed of organizational development. Man made machines are instruments and showpieces whereas the actual manpower is the one unique handicraft that gives sophisticated shape to the emerging ideas. Ideas in form of spiritual, academics or whatever we call cultural practices between two nations erupts by mere exchange of alumni. Hence, from my perspective alumni's role is central in accomplishing all these which otherwise are refrained. Human's mind collapse at a place when the inflow and outflow of information is curtailed and to remove this stagnancy and to have a broader perspective it is essential that novelty of ideas are exchanged which can be scientific, cultural or spiritual. Mind blowing cultural practices are equally important to rejuvenate this above stagnancy and henceforth critical evaluation of the entire scenario is not possible without exchange of values of life which otherwise are wide apart and need to be narrowed down with alumni exchange programme.