

The determinate and indeterminate nodulated legumes of jammu province and future insight in rice genome manipulation

Deepu Pandita¹ and Anu Pandita²

¹Government Education Department- Jammu & Kashmir, India

²Bee Enn College of Nursing, India

The term legume is derived from the Latin word legumen meaning “to gather.” There are some 17,000 species of the leguminous plants, which are known for their nitrogen fixing property and the high protein content. Only 20% legumes have been explored for the root nodules to be present. Further, out of these 20% explored species, only 90% showed the presence of root nodules. There are no reports on the presence of nodulated legumes from our state i.e.; Jammu & Kashmir. The nodules contain the nitrogen fixing bacteria which have the ability to fix the atmospheric nitrogen directly, instead of utilizing it from the soil.

In the present world scenario with the population of 6.8 billion there is an expected rise to 9.1 billion people by 2050. With it comes the question of feeding these extra mouths. In past from 3 billion between 1961 and 2007, the world population has now almost duplicated, even then agricultural output kept pace and needs to continue to do so. But the climate change due to global warming in particular, adds a large degree of uncertainty to projections of agricultural output. The Genetically modified (GM) crops will prove as an essential component of the sustainable Agriculture in future as a remedy for world hunger.

The Cereals are the most important crops for mankind and in future attempts will be made to integrate these nitrogen fixing genes into cereals, mainly *Oryza sativa*.

The Scientists have been using different ways for making it a reality. In early 1990s, the Nod factors were identified in legumes, leading to primary efforts to produce the root nodules on non leguminous plants itself. Second, effort was to introduce the receptors for Nod factors into the crop plants. With the scientific advancement in the field of biological nitrogen fixation, it was discovered that solely Nod factor genes, are not responsible for the nitrogen fixation but there are some alternate nitrogen fixation genes e.g; as are in *Bradyrhizobium*. So, now the focus has changed from root nodulation in non leguminous plants to direct transfer of the nitrogen fixing genes into cell's genome.

Keywords: Determinate nodules, indeterminate nodules, legumes, cereals.

deepupandita@gmail.com

Appraisal of conjugated linoleic acid production by probiotic *Pediococcus* spp. GS4

Vinay Dubey

VIT University, India

Purpose of Study: Probiotics with ability to produce Conjugated linoleic Acid (CLA) is considered as an additive health benefit property for its known role in colon cancer mitigation. In this study, we assessed the ability of isolated probiotic strain *Pediococcus* spp. strain GS4 for the biohydrogenation of Linoleic acid to conjugated linoleic acid.

Methods: *Pediococcus* spp. strain GS4 (Sukumar & Ghosh, 2010) were grown in MRS broth containing 0.2% linoleic acid for 48 hrs at 37°C at still condition for biohydrogenation. Formation of conjugated bond was assessed by the primary screening using UV-Vis spectrophotometry followed by HPLC, Gas chromatography and mass spectrometry (GC-MS) analysis. The study was extended to assess the ability of the strain to form conjugated linoleic acid in the medium supplied with 0.5% lipolysed sesame oil. During whole experiment the cell viability, pH change and Optical density (OD600nm) were also recorded.

Results: *Pediococcus* strain GS4 was found effectively able to convert linoleic acid to conjugated form with cell survivability 103.9%. UV-Vis scanning showed the major peak at 234nm and it was further confirmed by HPLC and GC-MS analysis.

Conclusion: Study suggests that strain is able to produce CLA from lipolysed oil.

dubeyvin22@gmail.com