J Biotechnol Biomater 2012, 2:6
http://dx.doi.org/10.4172/2155-952X.S1.020

OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Biotechnology

September 13-15, 2012 Hyderabad International Convention Centre, Hyderabad, India

Antibacterial activity of Mangifera indica kernel extracts

Alok Prakash
VIT University, India

Mango (Mangifera indica) is a fruit belonging to the genus Mangifera and family Anacardiaceae. Mango peels and seed kernels are the major by-products of mango juice industry, they are rich sources of natural bioactive compounds which play an important role in prevention of diseases. This study emphasized specifically on the potential of the mango Mangifera Indica seed kernel by discovering the prospective usage of mango seed kernels as a source of antibacterial compounds against Gram-positive (Staphylococcus aureus)and Gram-negative (Pseudomonas aeruginosa)bacterial strains. The significant increase in mango consumption in domestic activity leads to the accumulation of waste, especially its kernel. This study attempts to screen two varieties of mango kernels: Bannapalli and Senthura extracted using one extraction solvent i.e. distilled water to examine the potential of mango kernel as natural antibacterial against two bacterial strains: Staphylococcus aureus and Pseudomonas aeruginosa. Spread plate technique was employed to determine the antibacterial activity. Optimization of process conditions for extraction of antibacterial activity (having low number of colonies in plates) was conducted in Triplicates observation methods based on the experimental design by manipulating growth rate using kinetics and graphs. It was found that Bannapalli had the best antibacterial activity, utilizing distilled water as the extraction solvent. The maximum antibacterial activity at 37°C for 24h shows minimum number of colonies in plates. This finding would probably become an alternative source of new and natural antibacterial agents. A mango kernel extract has a bacteriostatic and antibacterial activity, and thus can be used in food products or cosmetics as a bacteriostatic and antibacterial agent. Furthermore, agents for preventing and treating acne or agents for preventing dental caries can be provided by adding said extract as an effective component.

Keywords: Mangifera indica, Staphylococcus aureus, Pseudomonas aeruginosa, Antibacterial activity, Kernel extracts.

Biography

Alok Prakash is pursuing his Bachelors in Biotechnology at the age of 20, from VIT University, Tamilnadu, India. Currently he has completed his second year of four years course. He is doing his summer internship from Britannia in Quality control department at Bangalore.

alok.prakash2010@vit.ac.in

Cloning, purification and characterization of LdFrataxin and LdIsd11 proteins involved in iron sulfur cluster (ISC) machinery of Leishmania donovani (Ld)

Amir Zaidi, Krishn Pratap Singh, Pradeep Das and Vahab Ali
Rajendra Memorial Research Institute of Medical Sciences, India

Fe-S clusters are involved in electron transport, catalysis, sensing and regulation of gene expression. The Fe-S cluster assembled by three distinct machineries viz ISC, NIF & SUF system. We have chosen to investigate the Iron Sulfur cluster (ISC) biogenesis system of L.donovani, an agent of visceral leishmaniasis. Leishmania genome search using NCBI/TIGR/Sanger/Leishmania database showed the presence of Frataxin and Isd11 homologue components involved in Iron Sulfur Clusters (ISC) machinery in mitochondria. The frataxin and Isd11 genes were amplified from L. donovani promastigotes (Ag83) and cloned in pGEX-4T1 vectors containing GST-tag and respectively in pET-28a vectors which possess His-Tag. Recombinant fusion proteins were expressed in BL21 (DE3) strain and purified using affinity chromatography. Protein-Protein interaction between LdFrataxin and LdIscU (scaffold protein) which was identified by co-purification of affinity chromatography followed by western blot analysis. Further, we analyzed enzymatic activities of Fe-S clusters containing protein (eg, aconitase) and Iron content in drug resistance isolates of L.donovani promastigotes. Study suggests the presence of LdFrataxin & LdIsd11 and their interaction with central components of Fe-S cluster machinery of L.donovani. Fe-S proteins and iron content are up-regulated in drug resistant L. donovani promastigotes.

Biography

Amir Zaidi is a Predoctoral fellow at Department of Biochemistry and registered with Dr. Vahab Ali. Dr.V Ali is an eminent ICMR Scientist who first time identified NIF, Fe-S clusters machinery system in E. histolytica. Mr.Zaidi has been awarded CSIR & UGC fellowship and working on “characterization of iron sulfur clusters (ISC) machinery of protozoan parasite”, an ICMR supported project. He is a member of the Society of Biological Chemists and also in advisory committee of Renaissance Biotech Pvt. Ltd, India.

azaidi.bio@gmail.com