Organic Farming

Microbial composition of Panchagavya

H.P. Patnaik, S. K. Dash[1] and B. Shailaja

Department of Entomology, College of Agriculture,; [1]P.G.Department of Microbiology ,Centre for PG Studies, Orissa University of Agriculture & Technology (OUAT), Bhubaneswar 751 003, Odisha.

E mail: hariprasad_ento@ yahoo.co.in

ABSTRACT

Panchagavya (PG) prepared with five cow products was investigated for documenting the microbes at 7, 15, 30 and 50 days after its preparation. The isolated microbes consisted of aerobic heterotrophic bacteria, lactic acid bacteria, yeast like fungi and anaerobic bacteria. The highest microbial load were recorded in the 7 days old PG. Though a gradual reduction in the microbial load was observed up to 50 days, the microbial population reduced significantly after 30 days, suggesting that the use of PG should be restricted upto 30 days of its preparation to derive maximum benefits.

Key words: Microbes, Panchagavya

Promotion of rice seedling growth characteristics by development and use of bioformulation of *Pseudomonas fluorescens* RRb-11

Prashant P. Jambhulkar[1] and Pratibha Sharma[2]

[1]*Agriculture Research Station, Borwat farm, MPUAT, Banswara,*
[2]*Division of Plant Pathology, Indian Agriculture Research Institute, New Delhi*
Email:ppjambhulkar@gmail.com

ABSTRACT

The experiments carried out to study the effect of various carrier based bioformulation on germination, plant height, dry matter and yield revealed that the seed bacterisation increased seed germination by 4.1 to 11.7 percent and by 3.5 to 11.2 percent over the control in pot experiment and by 3.0 to 12.1 percent and 2.0 to 11.8 percent over the control in the microplot experiment during 2006 and 2007, respectively. Seed bacterisation with talc based bioformulation increased plant height significantly. Similarly, the carrier based bioformulation increased dry matter and yield in a significant manner. Though the wheat and soybean based bioformulation was found ineffective in enhancing growth parameters but talc and kaolinite based bioformulation were equally at par in enhancing plant growth characteristics. Seed treatment and spray with RRb-11 bioformulation and chemicals were found at par in reducing disease intensity and increase in the yield.

Key words: *Pseudomonas fluorescens*, PGPR, Plant Growth Promotion, Plant height, Germination, drymatter

Utilization of bagasse hydrolyzate for lactic acid production by fed batch fermentation

Manoj K. Ghosh, Uttam K. Ghosh

Department of Paper Technology, IIT Roorkee, Saharanpur Campus, Saharanpur-247001, (UP), India
Author For Correspondence: Manoj K. Ghosh
E Mail: mkengg2004@ rediff.com, mkengg2004@gmail.com

ABSTRACT

Comparative study of lactic acid production, conducted through the fed batch fermentation and batch production method utilizing sugars from acid hydrolyzed sugarcane bagasse partially substituting glucose in production media and pure strains of *Lactobacilli* (1) *L. delbreuckii* (NCIM2025) (2) *L. pentosus* (NCIM 2912) (3)*Lactobacillus*

sp.(NCIM 2734 (4) *Lactobacillus sp.* (NCIM2084) and coculture of first two strains revealed that the strain-3 provided the highest lactic acid production of 89.92 g/l and 109.45 g/l, closely followed by that of coculture, 88.79 g/l and 108.94 g/l at 120 g/l total sugar input, while at same sugar input the productivity values of coculture 1.8497 and 1.8156 g/l/h in cases of batch and fed batch production were overall highest in comparison to all the pure strains. The experiments highlighted the potential, advantages of the coculture over pure culture (based on productivity) and fed batch production over the batch one, in terms of maximum lactic acid production, and operating without inhibition at high sugar concentrations.

Keywords: Batch, Bagasse, Coculture, Fed batch, Fermentation, hydrolyzate, *Lactobacillus.*

Efficacy of neem seed oil for bamboo protection against degrading agencies

Himani Pant* and Sadhna Tripathi

Wood Preservation Discipline, Forest Research Institute, Dehradun,India

E-mail:-tripathis@icfre.org, pant.himani@yahoo.co.in

ABSTRACT

The experiment carried out to test the effectivity of different neem seed oil concentrations in bamboo protection, done through Boucheriee process, revealed that the treated *Dendrocalamus strictus* and *Bambusa nutans* performed excellently till one year. None of the bamboo species was protected by neem seed oil treatment after 24 months. Results revealed that the specimens above ground were in sound condition, so neem seed oil can be recommended for interior use.

Key words: *Bambusa nutans,* CCA, CCB, *Dendrocalamus strictus* and neem seed oil

Utilization of cheese whey for lactic acid production by batch and fed batch fermentation

Manoj K. Ghosh and Uttam K. Ghosh

Department of Paper Technology, IIT Roorkee, Saharanpur Campus, Saharanpur-247001 (UP) India

E Mail: mkengg2004@ rediff.com, mkengg2004@gmail.com

ABSTRACT

The studies on lactic acid production through the batch and fed batch fermentation methods, utilizing combination of glucose and cheese whey as carbon source and pure strains of *Lactobacilli* (1) *L. delbreuckii* (NCIM2025) (2) *L. pentosus* (NCIM 2912) (3) *Lactobacillus sp.* (NCIM 2734 (4) *Lactobacillus sp.* (NCIM2084) and coculture of first two strains, revealed that in batch and fed batch fermentations, the coculture provided the highest lactic acid production of 96.01 g/l and 112.56 g/l, followed by that of strain -1, 89.34 g/l and 104.26 g/l at 120 g/l total sugar input. Higher productivity values of strains were also evidenced at 120 g/l total sugar dose under fed batch fermentation as compared to batch production with pure glucose or whey mixed glucose. The experiment highlights the potential, advantages of the coculture over pure culture and fed batch production over the batch one, in terms of maximum lactic acid production.

Keywords: Batch, Coculture, Fed batch, Fermentation, *Lactobacillus.*

Effect of water stress on essential oil, biochemical's and growth in different varieties of Japanese mint

Priti Mathur

Amity Institute of Biotechnology, Amity University, Viraj Khand, Gomti Nagar, Lucknow, U.P. 226010, India.

e mail-pmathur@lko.amity.edu

ABSTRACT

The pot culture experiment conducted with Japanese mint (*Mentha arvensis* L. var. piperascens Mal.) cultivars exposed to water stress and recovery for growth and essential oil metabolism revealed reduction in herbage yield, relative water content, water potential and nitrate reductase activity and increase in proline, menthol and sugar contents. Oil content increased in Code –A, Himalaya, decreased in Gomti & Shivalik while it remained unchanged in Hy-77. Code –A and Himalaya showed better adaptability than other varieties under drought.

Key words*: M.arvensis*, essential oil, Proline, nitrate reductase, sugar content

Post-harvest soil nutrient status as influenced by rice varieties, sowing time, and nitrogen levels under rainfed upland conditions

A.V.Ramana; D.S.Reddy and K. Rama Kumar Reddy

Department of Agronomy, Acharya N.G.Ranga Agricultural University, Agricultural college Naira – 532 185, Srikakulam (Dist.), A.P.

email: avragro@rediffmail.com

ABSTRACT

Field experiments were carried out for two consecutive *kharif* seasons of 1998 and 1999 at Agricultural Research Station, Ragolu of North Coastal Agro climactic Zone of Andhra Pradesh to study the influence of varieties, time of sowing and nitrogen levels on post-harvest soil nutrient status in rainfed upland rice. Post harvest available N status of soil was altered significantly due to rice varieties and variation in time of sowing as well as nitrogen levels. The interaction effects among these factors were also statistically measurable during both the instances of study. While, the post harvest soil available phosphorus and potassium status did not alter significantly. The post harvest soil available nitrogen, phosphorus and potassium status was found to be the highest with the treatments recording the lowest yield.

Key words: Post harvest, Nutrient status. Nitrogen, Phosphorus, Potassium

Use of organic formulations in enchancing mulberry productivity in sericulture

V.V Uppar and S.G Rayar

Department of Agricultural Entomology, College of Agriculture, Dharwad – 580 005, Karnataka, India
e.mail: vivek.vu@rediffmail.com

ABSTRACT

The organic based foliar sprays viz., vermiwash, biodigester and panchagavya were sprayed at 1, 3 and 5 per cent on M-5 mulberty on 15 and 30th day of pruning. Vermiwash at 5 per cent significantly stimulated the plant growth, leaf yield and a biochemical constituent of mulberry over vipul and unsprayed leaves. The silkworm growth, cocoon and silk traits increased correspondingly with foliar spray of vermiwash at 5 per cent on mulberry.

Keywords: Mulberry, organic foliar spray (vermiwash, biodigester and panchagavya), leaf yield and quality, silkworm, *Bombyx mori*, bioassay.

Utilization of coarse grains for preparation of *Thalipeeth,* its sensory acceptability and nutrient availability

Shilpee Gupta and Virginia Paul

Halina School of Home Science, Dept. of Food and Nutrition, Allahabad (U.P) India
email: shilpeeg21@gmail.com, vpaul17@gmail.com

ABSTRACT

The study carried out with the objectives of assessing the acceptability of *Thalipeeth* developed by incorporating bajra, wheat and soy flour mixed in the ratio of 10:80:10 (T_1), 20:70:10 (T_2), 30:60:10 (T_2) against 100% wheat flour (control) and to finding out the nutritive value as well as analyzed elements by TBS indicated that *Thalipeeth* was liked very much by the panelists. Nutrient analysis indicated that *Thalipeeth* contains 47.34% moisture, 1.95% ash, 7.3% fat, 6.39% protein. 0.68% fiber, 2.145 mg iron, 31.32 mg calcium, 36.24% carbohydrate and 237 kcl energy. Elements detected from LIBS spectra for the developed product were carbon, hydrogen, nitrogen, calcium, iron, sodium and magnesium.

Keywords: Coarse grain, *Thalipeeth*, nutrient

Entomology

Potential of neem cake in the control of stalk borers, termites and root-knot nematodes in Tanzania

R. Otsyina[1], M. R. Rao[2], D. Asenga[1], R. C. Saxena[3], R. Msangi[4] and P. Weinner[4]

[1]*HASHI/ICRAF Agroforestry Project, P. O. Box 797, Shinyanga, Tanzania*
[2]*International Centre for Research in Agroforestry (ICRAF), P. O. Box 30677, Nairobi, Kenya*
[3]*International Centre of Insect Physiology and Ecology (ICIPE), P. O. Box 30772, Nairobi, Kenya*
[4]*SADC/ICRAF Agroforestry Project, P. O. Box 306, Tabora, Tanzania*
Email:susaxena@satyam.net.in

ABSTRACT

In field trials conducted during high stalk borer infestation in Tanzania, application of powdered neem cake at 2g/plant twice at 4 and 6 weeks after plant emergence increased the grain yield by 30 percent over the untreated control and by 25 percent over thiodan treatment. Application of neem cake at 3g/m^2 also reduced lodging due to termite attack in maize crop and registered a 62 percent higher grain yield over the untreated control and 15 percent over furadan treatment. Incorporating neem cake at 40 or 50g/m^2 into nematode-infested soil significantly reduced the juvenile (J2) population of the root-knot nematode, *Meloidogyne javanica*, as well as the root galling index in tomato and tobacco seedlings. The broad spectrum of biological activity of neem cake against insect pests as well as parasitic nematodes could confer dual benefits to farmers.

Key words: *Azadirachta indica,* neem cake, root-knot nematodes, stalk borers, Tanzania, termites

Role of weather factors and total soluble solids on the population buildup of the pink hibiscus mealybug, *Maconellicoccus hirsutus* (Green) (Hompoptera : Pseudococcidae) on grapevine in India

N. S. Kulkarni * and M. Mani

National Research Centre for Grapes, Manjri Farm P.0. P.B.NO.3, Solpur road Pune-412307, India
e-mail: narendrask@yahoo.co.in

ABSTRACT

Field studies, conducted from December 2004 to March 2005 on Thompson seedless at Bangalore and from December 2006 to March 2007 at Pune, to determine the role of weather factors and total soluble solids (TSS) in the buildup of the pink hibiscus mealybug *Maconellicoccus hirsutus* (Green) population in the vineyards revealed that the buildup of the population of *M. hirsutus* was found to increase from 25.30 / plant in December 2004 to 522.90/plant during March 2005 at the time of harvesting in Bangalore. A steady buildup was also observed in the number of mealybug colonies from 0.80 / plant in December 2006 to 7.40 /plant during March 2005 at the time of harvesting at Pune. Further the studies have also shown that the mealybug population buildup coincide with increased with the increase in temperature, decrease in the humidity and advancement in the berry development. Step-wise regression procedure employed to arrive at a multiple regression model showed that 96.1-99.7 % of the mealybug population buildup could be predicted by two factors namely relative humidity and TSS. It is concluded that the weather factors chiefly relative humidity coupled with TSS influenced the buildup of the mealybug population in the vineyards in both the locations.

Key words: *Maconellicoccus hirsutus*, grapevine, weather factors, Total Soluble Solids

Influence of imidacloprid and thiamethoxam treated stored seeds on honey bee visitation in sunflower

Asha V. Kencharaddi, R.A. Balikai and S.T. Prabhu

Department of Agricultural Entomology,
University of Agricultural Sciences, Dharwad-580 005, Karnataka, India
E-mail: rabalikai@gmail.com

ABSTRACT

The field experiment carried out in factorial randomized block design, during *rabi* 2009-10, with six insecticidal treatments and six storage periods to evaluate eco-friendly approaches for the management of early season sucking pests in sunflower and their impact on honey bee visitation to sunflower field revealed that the honey bee visitation to sunflower field, both in the morning and afternoon hours during peak flowering period, was unaffected by seed treatment with imidacloprid 600 FS @ 10 ml/kg seeds, imidacloprid 70 WS @ 5 g/kg of seeds, thiamethoxam 70 WS @ 5 g/kg of seeds, thiamethoxam 35 FS @ 10 ml/ kg of seeds or spraying with imidacloprid 200 SL (0.25 ml/l) at 22 days after sowing and storage period of six months before sowing. Similarly, the head diameter was also not significantly influenced by the insecticidal treatments and storage periods. The higher seed yield (13.62 q/ha) was recorded from imidacloprid 600 FS @ 10 ml/kg seeds. The superiority of registering higher yield in other treatments was in the descending order i.e. thiamethoxam 70 WS @ 5 g/kg seeds, thiamethoxam 35 FS @ 10 ml/kg seeds and imidacloprid 70 WS @ 5 g/kg seeds with 12.76, 12.50 and 12.37 q/ha, respectively. Similarly, the storage periods significantly influenced the seed yield of sunflower, the highest (17.06 q/ha) being obtained from one month stored seeds.

Key words: Seed treatment, Head diameter, Seed yield, Bee visitation

Search for alternatives to Sugar Syrup for off season apiculture

Rachna Pande and A.K. Karnatak

Department of Entomology, College of Agriculture, G.B. Pant University of Agriculture & Technology, Pantnagar – 263 145, India
e-mail: rachna.ento@gmail.com

ABSTRACT

In an effort to develop an efficient and economical alternative of sugar supplement for off-season feeding of honey bees (*Apis mellifera*) colonies, syrups prepared with four different sources viz., wheat bran, rice bran, maize and sugarcane juice were evaluated against the control (Sugar solution), and their impact on desirable attributes of bee

colonies determined. The results indicated that none, other than the sugar syrup, proved effective in improving the honey bee colonies. However, feeding bees with these syrups reduced the cost of feeding.

Key words Apis mellifera, bran, maize, honey bee, sugar, sugar cane

Spinosad 45% SC - Natural insecticide for the management of thrips, *Scirtothrips dorsalis* in grape vineyards

N.S. Kulkarni

National Research Centre for Grapes, Manjri Farm P.O., P.B.No-3
Solpaur Road, Pune -412 307 (M.S) India*

ABSTRACT

Spinosad 45% SC @ 25 ml/ 100 l water was found to be most effective dose in reducing thrips population as well as in obtaining the fruit yield but it was on par with higher dose of 30 ml / 100 l water. However both the doses were superior over its lower dose of 20 ml/ 100 l water. All the spinosad 45% SC doses were superior over standard checks, dimethoate, oxydemeton methyl and endosulfan at recommended doses both in reducing thrips population and in obtaining the fruit yield. None of the tested doses of Spinosad 45% SC found phytotoxic. Natural enemies activity was noticed in all the spinosad 45% SC treated plots along with untreated plots and it revealed that it did not adversely affect the natural enemy population at recommended doses. Spinosad 45% SC was found to be compatible with the commonly used pesticides in vineyards.

Key Words: Bio-efficacy, Compatibility , Grape, Phyto-toxicity, Spinosad 45% SC, Thrips

Plant Pathology

Response of *Trichoderma harzianum* in direct seeded rice under medium low land rainfed conditions

P. K. Singh[1]*, B. K. Dhakad[1], H. B. Singh[2*] and A. K. Singh[1]

[1]*Department of Genetics and Plant Breeding and* [2]*Department of Mycology and Plant Pathology, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi- 221005, India.*

E-mail: hbs1@rediffmail.com, pksbhu@gmail.com

ABSTRACT

A field experiment carried out during *kharif* 2010 at research farm of Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, to assess response of *Trichoderma harzianum* in direct seeded rice under medium low land rainfed conditions, revealed that *T. harzianum* treated seed recorded significantly improved seed germination, plant height, panicle length, total number of tillers per plant, number of grains per panicle, test weight and grain yield per plant, while it significantly reduced the days to 50 per cent flowering, days to maturity and disease intensity as compared to their control. *Trichoderma* treated seeds of variety Sahbhagi Dhan (96.67%) showed maximum seed germination percentage followed by IR-64sub1 (95.0%) compared to untreated control 71.67% and 41.67%, respectively. It increased 25 to 53 % seed germination percentage while reduced days to 50 per cent flowering and maturity by 5 to 7 days. *T. harzianum* not only improved the grain yield and its contributing traits but also reduced the intensity of blast disease (*Magnaporthe grisea*). The *Trichoderma* treated seeds showed 23.30% to 30.55% disease intensity compared to untreated seed 40.50% to 48.09%, hence, it reduced approximately 10-25% disease intensity, suggesting that *T. harzianum* spp. may be used as bio-inoculants for controlling blast disease of rice besides increasing the grain yield.

Keywords: Biological control, blast, rice, *Trichoderma harzianum*

Antagonistic activity of *Trichoderma viride* against fungal pathogens causing diseases in agriculture crops

Ritu Srivastava and Diwakar Singh

Gama Organomed Plus (Pvt) Ltd, E-223, UPSIDC, Kursi Road, Lucknow (U.P.)
e-mail: ritu2864@rediffmail.com

ABSTRACT

The antagonistic screening of *Trichoderma viride* against fungal pathogens, *Alternaria alternata, Fusarium solani, F. oxysporum, Mycosphaerella* spp and *Colletotrichum falcatum,* isolated from diseased cauliflower, pigeon pea, banana and sugarcane plants from Sultanpur, Uttar Pardesh, showed 72.50, 67.75, 70.45, 45.40 and 62.75 per cent growth inhibition suggesting for its commercial exploitation under localized climatic conditions.

Key words: Antagonistic activity, fungal pathogens, *Trichoderma viride,*

Effect of soil reaction on some fungal antagonists in suppressing white mould of french bean

N.Tiameren Ao[1], K.N. Bhagabati[2] and M.C. Talukdar[3]

[1,2]*Department of Plant Pathology, Assam Agricultural University, Jorhat – 785 013, Assam*
[3]*Department of Soil Science, Assam Agricultural University, Jorhat – 785 013, Assam*
***email**: tiakichu@rediffmail.com*

ABSTRACT

The effect of soil reaction on *Trichoderma koningii*, *Gliocladium virens* and *Aspergillus terreus* in suppressing *Sclerotinia sclerotiorum* (Lib.) de Bary, the cause of white mould of French bean, was studied under screen house condition. The results showed that soil application of *T. koningii*, *G. virens* and *A. terreus* significantly inhibited development of white mould incidence in all the soil reactions *viz*., acidic, neutral and alkaline. The highest per cent plant mortality was recorded in alkaline soil (24.32%) followed by neutral (23.11%) and acidic (19.32%) soils. Among the three soil reactions, maximum plant height (30.57cm), root length (11.88cm), dry weight of shoots (5.94g), dry weight of roots (3.20g) and pod yield (195.39g) was recorded in neutral soils. Maximum reduction in per cent plant mortality was observed with *T. koningii* (12.50%) in soils with acidic pH and *A. terreus* in neutral pH (9.12%) and alkaline pH (10.56%) soils, respectively.

Key words: French bean, *Sclerotinia sclerotiorum*, white mould, antagonists.

Management of white rot of pea

Tejbir Singh

Subject Matter Specilist (Plant Protection)

Krishi Vigyan Kendra, Jeolikote, Nainital (Uttarakhand), India

ABSTRACT

Field trials were conducted during 2009-10 and 2010-11 seasons to manage white rot of pea caused by *Sclerotinia sclerotiorum* (Lib.) de Bary through bioagents and chemical treatments revealed that the most effective treatments for the control of white rot achieved was with Bavistin i.e. seed treatment + foliar spray (disease intensity 4.5%) followed by *Trichoderma harzianum* i.e. soil application + foliar spray (6.5%), *T. harzianum* i.e. seed treatment + foliar spray (6.75%) over untreated control (37.5%). The maximum yield was recorded by seed treatment + foliar spray with Bavistin (52.55 q ha^{-1}), followed by soil application + foliar spray with *T. harzianum* (51.18 q ha^{-1}), seed treatment + foliar spray with *T. harzianum* (50.5 q ha^{-1}) over the control (29.33 q ha^{-1}). Soil application alongwith foliar spray by *T. harzianum* reduced disease intensity, produced higher yield over the control and was economical than chemical.

Keywords: White rot, pea, *Sclerotnia sclerotiorum, Trichoderma harzianum*, Bavistin

Effect of soil amendment with *Trichoderma atroviride* and prochloraz in presence of wilt pathogen on growth and yield of tomato in tropical agro ecosystems

Mushtaq Ahmed

Laboratory of Mycopathology and Microbial Technology, Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi-221005, India,

E-mail: mushtaq_bhu@rediffmail.com

ABSTRACT

Efficacy of soil amendment with *Trichoderma atroviride* and prochloraz ($C_{15}H_{16}Cl_3N_3O_2$) against wilt pathogen was evaluated on tomato plants in tropical agro ecosystems. Both *Trichoderma atroviride* and the fungicide suppressed the wilt disease and enhanced tomato growth and the yield. Antagonistic activity of the bioagent against wilt pathogen and its growth promoting ability on tomato plants increased when applied in combination with prochloraz in the soil. Occuring abundantly in agricultural soils, the bioagent may be mass cultured and used as safe alternative to the hazardous chemicals for sustainable agriculture.

Key words: *Trichoderma atroviride,* prochloraz, *Fusarium* wilt

Compatibility of *Trichoderma* spp. isolates with plant extracts

M.L. Meghwal[1], P.P. Jambhulkar[2] and V.A. Solanki[1]

[1]*Department of Plant Pathology, C.P. College of Agriculture, S.D. Agricultural University,*

Sardarkrushinagar-385- 5062. ARS, Borwat Farm (MPUAT, Udaipur) Banswara – 32700
e.mail:ppjambhulkar@gmail.com

ABSTRACT

Five species of *Trichoderma* namely, *T. harzianum*, *T.viride*, *T. aureoviride*, *T.koningi* and *T. pseudokoningii* were tested for their compatibility against various plant extracts of onion, garlic and neem leaf extracts in 5, 10 and 15 per cent concentrations. T. harzianum isolates Th3 and Th1 were found the most compatible with onion extract at 5 and 10 percent, respectively. But isolates of T.harzianum Th6 and Th7, T.viride, T.koningii, T.aureoviride and T.pseudokoningii were found incompatible with 10 and 15 per cent concentration of onion extract. At 10 percent concentration, T. harzianum isolate Th 1 was more compatible with onion leaf extract followed by garlic and neem extract. The neem extract at all concentration levels was incompatible with all the species of Trichoderma.

Key words: *Trichoderma*, plant extract, onion, garlic, neem, compatibility

Post Harvest Management

Study of osmotolerant yeast isolted from spoiled aonla segments in syrup

Danish Nasar Khan, Preeti Yadav, Modh. Ashfaque and Neelima Garg

Central Institute for Subtropical Horticulture, Lucknow
Email: neelimagargg@rediffmail.com

ABSTRACT

The osmophilic budding spoilage yeast (*Saccharomyces sp*.), isolated from spoiled commercial aonla segments in sugar syrup having TSS 70^{0}B, was studied for sugar and heat tolerance, acid and preservative resistance and invertase production properties. The yeast exhibiting high invertase activity recorded sugar and acid tolerance by 70^{o}B and 1.2 per cent, respectively and resistant to preservative up to 800 ppm KMS. The yeast could however be controlled by proper heat treatment (boiling for 10 minutes at 100^{0}C) of spoiled aonla segments.

Development and storage stability of whey blended papaya fruit beverage

Sonia Minhas and Sangita Sood

Department of Food Science and Nutrition, CSKHPKV, Palampur 176062, India

ABSTRACT

Papaya squash prepared by blending fruit pulp with cheese-whey and soy-whey (50 : 50) and stored at ambient temperature for a period of three months was tested for chemical and organoleptic changes during the storage period. Acidity and sugars increased with increase in storage period whereas, pH, TSS, ascorbic acid decreased. The soy-whey squash was found more acceptable by the consumer as compared to cheese whey.