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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH**

Judul Jurnal Ilmiah (Artikel) : Optimization Production of Antifungal Substance from a Sponge-associated Trichoderma harzianum cultivated in the Tofu Dregs and Rice Bran
 Jumlah Penulis : 9 orang
 Status Pengusul : penulis Ketua
 Identitas Jurnal Ilmiah :
 a. Nama Jurnal : *Research Journal of Biotechnology*
 b. Nomor ISSN : 2278-4535
 c. Volume, nomor, bulan tahun : *Vol. 14 (10) October (2019)*
 d. Penerbit : International Peer Reviewed Research Journal of Biotechnology, Nanotechnology, Biological Sciences
 e. DOI artikel (jika ada) : doi:10.3390/md7040523
 f. Alamat web jurnal :

JURNAL :
[https://worldresearchersassociations.com/Archives/RJBT/Vol\(14\)2019/October2019.aspx](https://worldresearchersassociations.com/Archives/RJBT/Vol(14)2019/October2019.aspx)
 ARTIKEL :

g. Terindeks di Scopus/Scimagojr/SJR=

Kategori Publikasi Jurnal Ilmiah (beri ✓ pada kategori yang tepat) :
 Jurnal Ilmiah Internasional
 Jurnal Ilmiah Nasional Terakreditasi
 Jurnal Ilmiah Nasional Tidak Terakreditasi

Hasil Penilaian Peer Review :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
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a. Kelengkapan unsur isi jurnal (10%)	4			3,6
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c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			9,6
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			10,8
Total = (100%)	40			33,6
Nilai Pengusul =	$0,6 \times 33,6 = 20,16$			

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Journal masuk kategori journal internasional terindeks Scopus (Q4) dgn nilai maks. 40. Kelengkapan isi jurnal bagus hanya utk beberapa referensi terkait dg mitra penerbitan kurang bbrp referensi yg tidak sesuai antara text body dg referensi/DP. Kedalaman pembahasan dan kemutakhiran referensi sudah bagus. Topik artikel sangat relevan dg kompetensi pengusul.


Σ Referensi : 29

b. $\frac{14}{29} \times 100\% = 48,3\% \Rightarrow \frac{24}{30} \times 12 = 9,6$

c. $\frac{17}{29} \times 100\% = 58,6\% \Rightarrow \frac{24}{30} \times 12 = 9,6$

Semarang,
 Reviewer 1

Februari 2020


 Prof. Ir. Tri Winarni Agustini, M.Sc, Ph.D
 NIP. 196508211990012001
 Unit kerja : Ilmu Kelautan FPIK Undip

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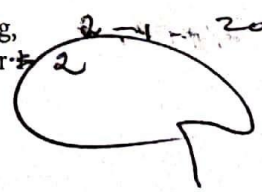
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b. Ruang lingkup dan kedalaman pembahasan (30%)	12			$77\% \times 40 = 30,80$
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			$28\% \times 40 = 11,20$
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			$28\% \times 40 = 11,20$
Total = (100%)	40			36,40
Nilai Pengusul =				$0,6 \times 36,40 = 21,84$

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- 4) Kualitas penulisan dan kelengkapan unsur-unsur jurnal sudah baik dan lengkap

Semarang, 24 10 2020
 Reviewer 2


 Prof. Dr. Ir. Johannes Hutabarat, M.Sc
 NIP. 195506281981031005
 Unit kerja : Ilmu Kelautan FPIK Undip



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2020

Vol. 14(10) October 2019

2019

Effect of camel whey immunoglobulins concentrate on the activity of sheep liver glutathione-s-transferases

2018

Abdallah Lubna, Benali Sanad, Zugier Diaa, Hoge Diaa, Bradia Hassan, Nazzal Abdulla, Al-Aqtum Ahmad and Kabaha Mahmoud

2017

Page No: 1-9

2016

Abstract: The aim of this study was to find out the effect of camel whey immunoglobulins on the activity of glutathione-s-transferases (GST). The effect of camel whey immunoglobulins was tested at variable conditions including their concentration effect, their pre-incubation effect and the effect of pH and temperature on their activity. Moreover, the effect of camel whey immunoglobulins on the thermal and pH stability of GST was also examined. Furthermore, kinetic parameters of GST were studied in the presence of camel whey immunoglobulins.

2015

The observed results showed that camel whey immunoglobulins were not affected by different pH values. Interestingly, milk immunoglobulins preserved the stability and the activity of GST enzyme except in the strong acidic and strong alkaline media. Camel whey immunoglobulins were more stable at 40 °C and their effect on GST activity declined after 60 °C. It was clearly noticed that the pre-incubation of GST enzymes with immunoglobulins for a certain period caused better effect than their direct addition. GSH Kinetic results showed that camel whey increased Vmax and Km values. In conclusion, camel whey immunoglobulins play an important role in the activation of GST enzymes even at different conditions.

2014

2013

[Full Text](#)

2012

Process optimization on degradation of phenanthrene by Candida tropicalis NN4 using response surface methodology: Green chemistry approach

2011

Ojha Nupur, Mandal Sanjeeb Kumar, Aich Pooja, Guru Anuja and Das Nilanjana

2010

Page No: 10-22

2009

Abstract: In the present study, phenanthrene degradation by yeast *Candida tropicalis* NN4 was optimized in the presence of biogenically synthesized ZnO nanoparticle using plant extract of *Ocimum tenuiflorum* and produced biosurfactant in the medium. The biosynthesized ZnO nanoparticles were characterized by UV-visible spectroscopy, Fourier transform infrared spectroscopy (FTIR) and Transmission Electron Microscopy (TEM) analysis. Biosurfactant producing ability of the yeast isolate was investigated by drop collapse test, emulsification index, methylene blue agar plate method, oil displacement test and lipase activity. The type of biosurfactant produced was sophorolipid which was characterized by FT-IR analysis. Response surface methodology (RSM), three-level three variables Box Behnken Design (BBD) were employed to optimize the factors viz., pH (7), NaCl concentration (1.5 gL⁻¹) and ZnO nanoparticle concentration (0.02gL⁻¹) for maximum phenanthrene degradation using *C. tropicalis* NN4.

2008

The TEM micrograph illustrated that the biosynthesized ZnO nanoparticle exhibited different nanostructures viz. tetragonal, spherical, hexagonal and triangular shaped with the average core diameter of 20 nm. The actual value (86.5 ± 0.02%) was in close agreement with predicted value (86.5 ± 0.01%) obtained by the RSM model indicating the validity of the RSM model. Phenanthrene degradation was confirmed through FTIR and GC-MS analysis. These results support the effectiveness of using RSM for maximum phenanthrene degradation.

2007

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2006



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2019

2018

2017

2016

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Assessment of probiotic attributes of *Enterococcus lactis* Dh2 and *Enterococcus lactis* AP4 isolated from traditional fermented foods

Chandel Manisha, Sharma Nivedita and Sharma Ranjana

Page No: 23-29

Abstract: The aim of the present study was to access probiotic attributes such as antimicrobial activity, acid and bile tolerance, auto aggregation capacity, hydrophobicity assay and antibiotic susceptibility of two screened potential lactic acid bacterial strains i.e. Dh2 and AP4 from dhaheli and aloe-vera pickle. These two strains were subjected to biochemical characterization; safety assessments and antimicrobial activity were found to have broad spectrum antagonism. The genomic level identification had been performed and these cultures of lactic acid bacteria were identified as *Enterococcus lactis* Dh2 with accession number [MH916768] and *Enterococcus lactis* AP4 with accession number [MK051470].

The results showed that the isolates were able to tolerate acidity up to 180 min as low pH as 2 and bile salt of 2%. Both the isolates showed good percentage of auto aggregation and strong hydrophobicity. As the two isolates were sensitive to most of the tested antibiotics, these data suggest that such isolates can be considered potential candidates for probiotic for commercial use.

[Full Text](#)

Efficiency of three mitochondrial genes in molecular identification and phylogenetic analysis of termites

Reem Alajmi, Ashraf Mashaly, Noura Al-Otaibi, Ahmed Mahmoud and Tahany Ayaad

Page No: 30-40

Abstract: Termites are eusocial insects with an economic impact where they cause a great loss in crops and man-made valued commodities and buildings. Rapid and accurate identification techniques of termite species are important step for management approaches. Termite identification based on morphological features is not reliable and could be misleading in many cases. In the current study, we planned to investigate the efficiency of three mitochondrial genes; mt12S rRNA, mtCOI and mtCOII in molecular identification and phylogenetic analysis of termites from Saudi Arabia. Partial sequences of mt12s rRNA and mtCOII were obtained from 10 populations of *Anacanthotermes ochraceus*, 10 populations of *Psammotermes voeltzkowi* and 10 populations of *Microcerotermes arboreus*. For the mtCOI, partial sequences were obtained from 10 populations of *Anacanthotermes ochraceus* and 10 populations of *Microcerotermes arboreus*.

Our sequence analysis revealed that mtCOII is evolving rapidly recording a large number of variable sites while mt12s rRNA is the most conserved. Intra- and interspecific variation varied between population of the same genus and among the three genera. Phylogenetic analysis showed the distribution of termite species based on their geographic region. Termite genera from Riyadh formed distinct clades. Populations of each genus formed different groups based on their intraspecific variations. The topology of 12s rRNA tree was more informative than those of mtCOI and mtCOII.

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Comparative phytochemical evaluation and biological control properties from *Lasianthus verticillatus* (Lour.) Merr. (Rubiaceae) extracts

2019

Tiwatwat Napiroon, Keerati Tanruean and Srunya Vajrodaya

2018

Page No: 41-49

2017

Abstract: *Lasianthus verticillatus* which is widely distributed in Northern and Northeastern Thailand was collected from five different natural habitats and the comparative phytochemistry and bioactivities of samples were studied. We compared chemical profiles and investigated the bioactivity of lipophilic extracts which were evaluated for their effects on the seed germination and seedling growth of two weeds (*Mimosa pigra* and *Cenchrus brownii*) and on a fungal pest (*Collectotrichum gloeosporioides*). The effects of the lipophilic extracts on the seed of the weeds were observed in a culture dish and the antifungal activity was evaluated using the micro dilution method. The TLC screening and detection using different specific reagents showed similar Rf values in the solvent system and the presence of terpenoids, alkaloids, phenolic compounds and coumarins in the extracts.

2016

2015

2014

HPLC showed similarity in the chemical profiles from all populations using UV detection of signals appearing near or at the same retention time, together with similar UV spectra of comparable signals. The results revealed that 1 week after seed culture, the extract affected the seed germination and seedling growth. With increasing concentration, the shoot and root lengths decreased significantly. The antifungal activity based on the minimum inhibitory concentration (MIC) value of stem bark and leaf extracts against *C. gloeosporioides* at 72 hr was 2.5 mg/mL. Significantly, we found that *M. pigra* and *C. brownii* treated with concentrations of stem bark lipophilic extracts less than or approximately the same as Acetochlor had a decreased seed germination and length of shoots and roots suggesting that the extract could act as a bioherbicide.

2013

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[Full Text](#)

2009

Evaluation of Phyto and Aquatic Toxicity of Neonicotinoid Insecticide Additives - Benzyl Benzoate and N-Cyclohexyl Benzothiazole-2-Sulfenamide and their Metabolites produced by *Pseudomonas desmolyticum* NCIM 2112

2008

Mali Gajanan Vishnu

2007

Page No: 50-57

2006

Abstract: Neonicotinoid is a class of insecticides that is derived synthetically from nithiazine and the natural nicotine. They are responsible to cause soil and water pollution if used in excess amount. Insecticide additives are added into the insecticide formulations to increase the efficiency of insecticides. However, they also are responsible for considerable ecotoxicity. Benzothiazole and its derivatives like benzyl benzoate and N-cyclohexyl benzothiazole-2-sulfenamide are commonly used insecticide additives in neonicotinoid insecticide formulations.

The present study was carried out with the objective of checking the potential of *Pseudomonas desmolyticum* NCIM 2112 in the biodegradation of toxic insecticide additives benzyl benzoate and N-cyclohexyl benzothiazole-2-sulfenamide into nontoxic metabolites as well as the evaluation of phytotoxicity and aquatic toxicity of these additives and their metabolites produced by *Pseudomonas desmolyticum* NCIM 2112. The results revealed the phytotoxicity as well as aquatic toxicity of these additives but reduced or no toxicity of metabolites indicating the potential application of *Pseudomonas desmolyticum* NCIM 2112 in biodegradation of ecotoxic neonicotinoid insecticide additives into their nontoxic metabolites.

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Modeling studies by response surface methodology on culture parameters optimization for keratinase production from *Actinomadura keratinilytica* Cpt20

Bilal Kerouaz, Fatiha Benamia, Amina Habbeche, Boudjema Saoudi, Soumeya Haberra, Jaouadi Bassam, Mokhtar Boudelaa, Hafedh Belghith, Ali Gargroui and Ali Ladjama

2019

Page No: 58-67

2018

Abstract: In this study a statistical approach was adopted to increase the production of keratinase from a thermophilic actinomycete *Actinomadura keratinilytica* strain Cpt20 isolated from poultry compost. For this purpose, the Plackett-Burman design and response surface methodology (RSM) were used as theoretical methods to optimize the culture conditions for keratinase production utilizing chicken waste as a low-cost alternative substrate with keratinolytic activity (U/ml) as reference parameter. Plackett-Burman design was first used to identify significant condition factors affecting the keratinase production. Then, optimal conditions were investigated through a response surface methodology. The coefficient of determination (R^2) shows the correlation between the calculated and estimated responses and the model adequacy was very good as R^2 was found to be equal to 98.9% with the probability of significance of 0.001 obtained from the RSM training set.

2017

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The model provided good quality prediction. K_2HPO_4 and $CaCO_3$ selected by the optimization process, showed a significant role in the production of keratinase and their optimum values were 1.25 g/L and 3 g/L respectively. The maximal keratinolytic enzyme production was 6800 U/mL under the optimal conditions, equal to a 6-fold increase in yield compared with the initial conditions (1120 U/mL). Thus, the optimal cultivation conditions enhanced significantly the production of keratinase. Also, *Actinomadura keratinilytica* strain Cpt20 showed a high potential in completely degrading feathers.

2013

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2010

Optimization Production of Antifungal Substance from a Sponge-associated *Trichoderma harzianum* cultivated in the Tofu Dregs and Rice Bran

Agus Trianto, Agus Sabdon, Ocky Karna Radjasa, Rini Pramesti, Nur Taufiq Samsudin Putrajaya, Muhammad Syaifudien Bahry, Desy Wulan Triningsih, Sulistiawati and Rachmat Afriyanto

2009

2008

Page No: 68-73

2007

Abstract: This study aimed to evaluate the production of the crude extract *Trichoderma harzianum* and its antifungal activity and toxicity. *T. harzianum* was cultured in tofu dregs and rice bran media both in saline and non-saline media. The fungi were cultured for 15 days at 24-25 °C. The media and the mycelia were extracted with methanol. All the extracts were tested against *Candida albicans*, *Malassezia furfur* and the *Trichophyton* sp. The extract was also tested to the human cells for the toxicity assessment. *T. harzianum* cultured in rice bran produced the extract significantly higher than those in the tofu dregs either in saline or non-saline media.

2006

However, the activity of the extract of *T. harzianum* cultured in the tofu dregs has higher activity than the extract of those cultured in rice bran. However, the use of seawater gave significant effect to the antifungal compounds production of the fungus cultured in rice bran media. The thin layer chromatography test showed that the fermentation process converts the compounds from media into new derivatives that are active against the pathogenic fungi. The extract of *T. harzianum* cultured in tofu dregs (saline and non-saline) and saline rice bran did not become toxic to the human cells. In conclusion, the antifungal activity of the *T. harzianum* extract was influenced by media type. Tofu dregs is a promising media for the large-scale production of non-toxic antifungal compounds.

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Page No: 74-86



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2019

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2017

2016

2015

2014

2013

2012

2011

2010

2009

2008

2007

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In-vivo anticancer activity of biogenic gold nanoparticles in zebra fish model

Mary Joselin J., Ganesh Kumar V., Govindaraju K., Tamilselvan S. and Shanmugapriya S.

Page No: 74-86

Abstract: In the present study diethyl nitrosamine induced hepatic cancer in Zebrafish is evaluated for anticancer activity of gold nanoparticles (AuNPs) synthesized using *Scoparia dulcis* Linn (*S. dulcis*). Fishes were exposed to 100 ppm of DEN (N-Nitrosodiethylamine) for the period of 42 days and were further divided in to 4 groups, in which one group received only DEN and other three group received co-treatment of DEN + different dose of AuNPs (7 ng, 27 ng and 40 ng) for 14 consecutive days. Anti-cancer activities of AuNPs were examined by determining the gross pathology, histology, erythrocyte count in experiment fish.

Gross pathology results exhibit the frontal abdominal and liver enlargement in almost all carcinogen exposed fish due to liver damage and inflammation. The differences between the treated and untreated group were observed. Histology results of AuNPs treated zebra fish show much lesser extent of progression of neoplastic changes compared to untreated group.

[Full Text](#)

Green synthesis of Manganese nanoparticles from Microalgae *Tetrademus acuminatus* isolated from freshwaters of Dharwad and evaluation of their Antioxidant and Anti-inflammatory activity

Mujeeb M.A., Ankalabasppa Vedarurthy, Arun Kashivishwanath Shettar, Joy Hoskeri H. and Shivasharana C.T.

Page No: 87-96

Abstract: The biomass from freshwater microalgae *Tetrademus acuminatus* was extracted using water by cold extraction method. MnNPs were synthesized by phyto-reducing method. The synthesized manganese nanoparticles were characterized by using different techniques including UV-visible spectroscopy, FTIR analysis and Scanning electron microscopy. In-vitro antioxidant activity of synthesized Mn NPs was evaluated by using DPPH assay and anti-inflammatory activity was carried out by using protein denaturation in vitro bioassay by employing standard in vitro method.

UV-Vis spectral analysis revealed a higher absorbance peak (λ_{max}) at 360 nm. and FTIR spectra showed shifts in some peaks of aqueous extract with functional groups. SEM studies show the size of MnNPs in the range of 30-100 nm with irregular shape. In vitro pharmacological study revealed that synthesized Mn NPs exhibited potential antioxidant and anti-inflammatory activities.

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Pharmacophore Modeling, Virtual screening and Molecular docking for the identification of Potential inhibitors against BRAF V600E

2019

Irshad Ahmed, Meena K.S. and Sangeetha K.

2018

Page No: 97-112

2017

Abstract:The point mutation V600E BRAF at present adjacent to the conserved DFG motif contributes the stimulation of BRAF kinase activity resulting in tumor progression and this specific mutation has been observed in 80 -90% of B-Raf mutant cancers. Hence, in this study potential inhibitors against the mutant V600E BRAF protein were identified by generating a ligand based on pharmacophore modeling followed by virtual screening and validation by molecular Docking in Discovery studio V4.0. Hypogen generated from the diverse chemicals having 2 hydrogen bond acceptor, 1 hydrophobic and 4 ring aromatic features.

2016

Virtual screening of the hypogen from the databases Mini Maybridge (2000 compounds), Marine compounds (900), Phytochemicals (5550), Drug diverse(5384), SCPDB compounds(5465) led to the identification of 210 molecules .The best competitive 20 hit compounds identified with the fit value > 3.5 were subjected for molecular docking against the target protein V600E BRAF. Subsequently, three phytochemicals and four from SCPDB were identified as the leads based on the hydrogen bond interaction and desirable pharmacokinetic properties. Hence these compounds can be proposed as lead candidates against BRAF V600E Protein.

2015

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2011

Changes of enzyme activities and phytochemical constituents in small cardamom capsules caused by the infestation of thrips, *Sciothrips cardamomi* (Ramk.)

2010

Murugan M., Dhanya M.K., Ashokkumar K., Sathyan T. and Surya R.

2009

Page No: 113-116

2008

Abstract:Thrips (*Sciothrips cardamomi* Ramk.) is a major pest of cardamom causing a considerable yield loss besides variation in colour and texture of the capsules. Present study was carried out to find out the phytochemical constituents changes occurring in thrips infested cardamom capsules. The results of this study revealed that there was a substantial variation in chemical constituents and enzyme activities in thrips infested capsules compared to healthy capsules.

2007

The activity of enzymes like peptidase, trypsin like protease, peroxidase and essential oil constituent 1,8-cineole was higher in the thrips infested (itched) capsules than itch free healthy capsules. However, the concentrations of protein, total sugars, total phenols and peptidase activity on thrips infested capsules were found lesser compared to the itch free healthy capsules.

2006

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2020

2019

2018

2017

2016

2015

2014

2013

2012

2011

2010

2009

2008

2007

2006

Beneficial activity of Brahmi gritha against diclofenac-induced toxicity in Wistar albino rats: An in-vivo study

Jerine Peter S., Praveena Lakshmi Chaitanya Laxmi B., Udhaya Lavinya B., Usha Kumari and Evan Prince Sabina

Page No: 117-124

Abstract: Diclofenac, a non-steroidal anti-inflammatory drug, has been associated with severe cases of clinical hepatotoxicity. Brahmi gritha is an important herb in Ayurveda which is reported to have a wide range of medicinal properties. The aim of our study is to evaluate the hepatoprotective activity and antioxidant effects of BG against diclofenac-induced liver injury in rats. The rats were divided into five groups of which group-I was normal control and group-II was administrated with diclofenac (50 mg/kg b.w /day i.p.) on 4th and 5th day. Group-III and group-IV were administrated with BG (500 mg/kg b.w /day/p.o.) and Silymarin (50 mg/kg b.w./day/p.o.) all the 5 days respectively. Group-V was administrated with BG (500 mg/kg b.w./day p.o.) on all the 5 days.

Hepatoprotective and antioxidant activity of animals were studied by evaluating the liver function markers and antioxidant parameters. Brahmi gritha was found to normalize the alteration caused by diclofenac similar to that of the silymarin-treated group. The results demonstrate the hepatoprotective effect of BG and thus suggest its use as a therapeutic agent for protection against diclofenac-induced toxicity.

[Full Text](#)

Evaluation of three different impression cytology techniques for RNA retrieval from canine ocular surface epithelial cells

Chelladurai Sowbharenya, Singh Kiranjeet, Gopinathan Aswathy and Agrawal Ravi Kant

Page No: 125-128

Abstract: Impression cytology (IC) refers to the application of various types of filters to the ocular surface to collect a maximum number of superficial ocular surface epithelia. It facilitates morphological studies, immuno-cytology, flow cytometry and real time PCR for diagnosis and for gene expression / biomarker identification of ocular diseases. Based on the filter and technique, the number of cells sampled can vary substantially.

This study evaluated three different techniques of IC for retrieval of maximum number of ocular surface epithelial cells from dogs and compared them based on amount of RNA isolated from each technique. The filters chosen for IC technique were nitrocellulose membrane with pore size 0.22 μ m, 0.45 μ m and sterile swab from both the eyes of six healthy dogs. RNA was isolated from the ocular surface epithelial cells (OSEC) by trizol method and was quantified. The nitrocellulose membrane with pore size 0.22 μ m (OD - 344.93 ng/ μ L \pm 17 and OS - 324.65 ng/ μ L \pm 264.17) demonstrated a greater yield of RNA as well as found to be best tolerated by dogs with minimum discomfort. This method can be implemented in both clinical and laboratory settings. Comparative evaluation of IC technique for maximum RNA retrieval will help ocular epithelial cell collection through a minimally invasive cell snap-shot technique.

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2017

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2013

2012

2011

2010

2009

2008

2007

2006

Biodegradation of Chlorpyrifos from Paddy Fields with Bacterial Consortium

Choudhuri Aniket, Silambarasan Sivagnanam and Abraham Jayanthi

Page No: 129-134

Abstract:Chlorpyrifos is an organophosphorus pesticide indispensable for agriculture and has been used extensively in spite of its deleterious effect on the environment in all parts of the world. Microbial degradation is an efficient and cost-effective promising method for removal of toxic organophosphorus pesticides from the agricultural field. Hence, the present investigation was carried out to analyze the degradation pattern of chlorpyrifos by employing microorganisms to prepare consortium of the microbes with pesticide degrading capacity.

The bacterial consortium containing *Pseudomonas fluorescens* MTCC 9768, *Pseudomonas alcaligenes* MTCC 7095, *Azospirillum brasilense* MTCC 4034 and *Bacillus megaterium* MTCC 6544 was used for degradation study. Minimum inhibitory concentration of chlorpyrifos for these organisms was carried out individually. The growth kinetics study was conducted for all the organisms with chlorpyrifos as the only carbon source in the media. With the minimum inhibitory concentration values, the degradation studies of chlorpyrifos and its metabolite TCP by these organisms were studied using HPLC. After 5 d, bacterial consortium degraded chlorpyrifos and its metabolite TCP to diethylthiophosphoric acid (DETP) analyzed by Gas Chromatography Mass Spectrometry (GC-MS). The ability to degrade chlorpyrifos makes this bacterial consortium a useful preparation for remediation of pesticide contaminated sites.

[Full Text](#)

Optimization of physicochemical parameters and medium components for enhancing the production of resveratrol in endophytic fungus *Aspergillus niger*

Roat Chetana and Saraf Meenu

Page No: 135-141

Abstract:Plant bioactive molecule resveratrol belongs to small class of stilbenes of polyphenolic group of plant secondary metabolites. Resveratrol has recently gained the focus in a number of studies in medicine, chemistry and has emerged as promising molecule potentially affects human health. The biosynthetic potential of endophytic fungi has gained impetus in recent times owing to the continual discovery of fungal endophytes capable of synthesizing plant compound. In this present study the resveratrol was isolated from the endophytic fungi from the leaf of *Cayratia trifolia* and was capable of producing the resveratrol up to fifth subculture generation.

The aim of present study was to optimize the physicochemical parameters of the endophytic fungus. On the basis of morphological and molecular characteristic, the fungus was identified as *Aspergillus niger* and designated as VVE1. The fungus was optimized for growth and production of resveratrol in batch culture system. The fungus produced optimum resveratrol in Czapek dox broth (CDB) at 28°C, pH 9 supplemented with carbon source xylose and yeast extract as a nitrogen source followed by incubation period of 9 days and enhanced secondary metabolite productivity by 2 folds. Phenylalanine with xylose and yeast extract enriched Czapek Dox broth enhanced the production of resveratrol from 320 µg g⁻¹ to 638 µg g⁻¹.

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2011

2010

2009

2008

2007

2006

Endophytic Microbiomes: Biodiversity, Ecological Significance and Biotechnological Applications

Rana Kusam Lata, Kour Divjot and Yadav Ajar Nath

Page No: 142-162

Abstract:Endophytic microbiomes are ubiquitous in nature and reported from most of cereal crops. In general, endophytic microbes appear to actively penetrate plant tissues using hydrolytic enzymes like cellulase and pectinase. The endophytic microbial community is of dynamic structure and is influenced by biotic and abiotic factors, with the plant itself constituting one of the major influencing factors. Endophytic microbes are known to enhance growth and yield of cereal crops by fixing atmospheric nitrogen, solubilization of phosphorus, potassium; production of phytohormones, ammonia, hydrogen cyanide and siderophores; possession of antagonistic activity as well as reducing the level of stress ethylene in host plants. Endophytes seem to contribute to plant fitness and growth displaying plant growth promoting traits that can be exploited in agriculture. The interaction between endophytes and plants can promote plant health and plays a significant role in low-input sustainable agriculture for both food and nonfood crops.

Endophytic microbiomes have been sorted out worldwide and belong to different phyla such as Acidobacteria, Actinobacteria, Ascomycota, Bacteroidetes, Basidiomycota, Deinococcus-Thermus, Euryarchaeota, Firmicutes and Proteobacteria. Among reported genera six genera Flavobacterium, Herbaspirillum, Nocardioidea, Pantoea, Pseudomonas and Streptomyces were most dominant in cereal crops. Along with common endophytic microbial genera, 6, 48 and 14 distinct and niche-specific genera have been reported in wheat, rice and maize respectively. This review summarizes part of the work being done on endophytic microbes from cereal crops such as wheat, rice and maize including their isolation, identification, diversity and biotechnological applications.

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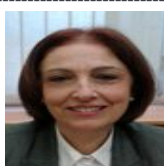
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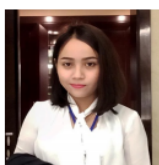
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