

SUBJECT INDEX 2019**1-butyl-3-methylimidazolium trifluoromethanesulfonate**

Characterisation of an ionic liquid-based gel polymer electrolyte for potential applications (Prasadini K.W., Perera K.S. & Vidanapathirana K.P.) **47: 133-138 (2019)**

 α dominated set-valued mapping

α -dominated set-valued mappings and some generalised fixed point results (Shoab A., Rasham T., Hussain N. & Arshad M.) **47: 235-243 (2019)**

Adaptive cluster sampling

Estimation of general parameter in adaptive cluster sampling using two auxiliary variables (Younis F. & Shabbir J.) **47: 89-103 (2019)**

Aggregate interlocking

Aggregate interlocking of open-graded friction courses with compaction effort (Mampearachchi W.K., Masakorala S.R. & Umasangar K.) **47: 139-146 (2019)**

Alkaline cellulase

Isolation of a cellulase producing *Bacillus cereus* from cow dung and determination of the kinetic properties of the crude enzyme (Croos A.M.B., Rajendran S. & Ranganathan K.) **47: 261-267 (2019)**

Alleles

Evaluating novel effective primers to amplify heterozygous alleles of second, third and fourth exons of HLA-A; -B; -C; -DRB1 and -DQB1 loci using sequencing-based typing (Perera P.C.D., Upamali B.D.N., Gunawardene Y.I.N.S. & Dassanayake R.S.) **47: 341-348 (2019)**

Analogy

Structural form as an analogical source for structures of nature: two examples (Dias P. & Hahn R.) **47: 323-331 (2019)**

Anaximander

Structural form as an analogical source for structures of nature: two examples (Dias P. & Hahn R.) **47: 323-331 (2019)**

Animal and plant protein supplements

Chemical composition and gross energy content of commonly available animal feedstuff in Sri Lanka (Pavithra S., Vidanarachchi J.K., Sarmini M. & Premaratne S.) **47: 79-87 (2019)**

Antibiotic resistant genes (ARGs)

Occurrence and distribution of tetracycline resistance determinants and their pollution profile in selected aquaculture environments in Sri Lanka (Liyanage G.Y. & Manage P.M.) **47: 455-465 (2019)**

Aquaculture

Occurrence and distribution of tetracycline resistance determinants and their pollution profile in selected aquaculture environments in Sri Lanka (Liyanage G.Y. & Manage P.M.) **47: 455-465 (2019)**

Arabidopsis thaliana

Effect of *Macrophomina phaseolina* on growth and expression of defense related genes in *Arabidopsis thaliana* (Saima S. & Wu G.) **47: 113-120 (2019)**

Auxiliary variable

Estimation of general parameter in adaptive cluster sampling using two auxiliary variables (Younis F. & Shabbir J.) **47: 89-103 (2019)**

Auxiliary variable

Utilising bivariate auxiliary information for enhanced estimation of population mean under simple and stratified random sampling schemes (Javed M., Irfan M. & Pang T.) **47: 199-211 (2019)**

Auxis thazard

Some biological aspects and molecular variations in frigate tuna, *Auxis thazard* of the coastal waters around Sri Lanka (Herath D.R., Perera H.A.C.C. & Hettiarachchi G.H.C.M.) **47: 333-340 (2019)**

Bacillus cereus

Isolation of a cellulase producing *Bacillus cereus* from cow dung and determination of the kinetic properties of the crude enzyme (Croos A.M.B., Rajendran S. & Ranganathan K.) **47: 261-267 (2019)**

Bacterial biomarkers

Molecular indicators of early stage diagenesis in the tropical coastal Bolgoda Lake, Sri Lanka (Ratnayake A.S., Sampei Y. & Ratnayake N.P.) **47: 69-77 (2019)**

Bangladesh

Effect of micronutrient fortified fertiliser application on the growth and yield components of tomato plant in floodplain soils of Bangladesh (Sarker Md. M.H., Moslehuddin A.Z. Md., Jahiruddin M., Islam M.R. & Talukder R.) **47: 161-168 (2019)**

Best linear unbiased estimator

Estimation of the parameters in two linear models with some of the identical parameter vectors under the Pitman's closeness criterion (Wu J.) 47: 363-368 (2019)

Bias

Utilising bivariate auxiliary information for enhanced estimation of population mean under simple and stratified random sampling schemes (Javed M. Irfan M. & Pang T.) 47: 199-211 (2019)

Buckminsterfullerene

Structural form as an analogical source for structures of nature: two examples (Dias P. & Hahn R.) 47: 323-331 (2019)

Calcium carbonate

Effect of an organotitanate coupling agent on properties of calcium carbonate filled low-density polyethylene and natural rubber composites (Sampath W.D.M., Egodage S.M. & Edirisinghe D.G.) 47: 17-27 (2019)

Calcium hydroxide

Durability properties of alkali pozzolan cement (APC) (Kulasuriya C., Dias W.P.S. & Vimonsatit V.) 47: 121-131 (2019)

Carbonation

Durability properties of alkali pozzolan cement (APC) (Kulasuriya C., Dias W.P.S. & Vimonsatit V.) 47: 121-131 (2019)

Cauchy completion

Z_p as a final coalgebra obtained by Cauchy completing the initial algebra (Manokaran A., Ratnayake J. & Jayewardene R.) 47: 105-112 (2019)

Chemical weathering

Sedimentary geochemistry of alluvial overburden in the primary gem deposit of Pelmadulla, Sri Lanka (Jayawardana D.T., Madusanka R.M.T.D., Jayasinghe R.M.N.P.K., Adikaram A.M.N.M. & Udagedara D.T.) 47: 221-234 (2019)

Chloride ion penetration

Durability properties of alkali pozzolan cement (APC) (Kulasuriya C., Dias W.P.S. & Vimonsatit V.) 47: 121-131 (2019)

Cinnamomum verum

Intensity of leaf spot and rough bark diseases in cinnamon accessions collected from major cinnamon growing areas of Sri Lanka (Azad R., Kumara K.L.W., Senanayake G., Ranawaka R.A.A.K., Pushpakumara D.K.N.G. & Geekiyanage S.) 47: 297-305 (2019)

Classifier chain algorithms

Efficient label ordering for improving multi-label classifier chain accuracy (Ali T. & Asghar S.) 47: 175-184 (2019)

Closed ball

α -dominated set-valued mappings and some generalised fixed point results (Shoaib A., Rasham T., Hussain N. & Arshad M.) 47: 235-243 (2019)

Cluster analysis

Intensity of leaf spot and rough bark diseases in cinnamon accessions collected from major cinnamon growing areas of Sri Lanka (Azad R., Kumara K.L.W., Senanayake G., Ranawaka R.A.A.K., Pushpakumara D.K.N.G. & Geekiyanage S.) 47: 297-305 (2019)

CMC agar media

Isolation of a cellulase producing *Bacillus cereus* from cow dung and determination of the kinetic properties of the crude enzyme (Croos A.M.B., Rajendran S. & Ranganathan K.) 47: 261-267 (2019)

Coconut testa flour

Comparison of inter-varietal differences in chemical composition and nutritional properties of coconut testa flour (Marasinghe S.S.K., Marikkar J.M.N., Yalagama C., Wimalasiri S., Seneviratne G., Weerasooriya R. & Liyanage R.) 47: 349-356 (2019)

Coconut

Comparison of inter-varietal differences in chemical composition and nutritional properties of coconut testa flour (Marasinghe S.S.K., Marikkar J.M.N., Yalagama C., Wimalasiri S., Seneviratne G., Weerasooriya R. & Liyanage R.) 47: 349-356 (2019)

Coefficient of variation

Estimation of general parameter in adaptive cluster sampling using two auxiliary variables (Younis F. & Shabbir J.) 47: 89-103 (2019)

Cognitive radio

Human opinion dynamics-based optimization for in-band spectrum sensing in cognitive radio networks (Garg R. & Saluja N.) 47: 467-477 (2019)

Common fixed point

α -dominated set-valued mappings and some generalised fixed point results (Shoaib A., Rasham T., Hussain N. & Arshad M.) 47: 235-243 (2019)

Common parameters

Estimation of the parameters in two linear models with some of the identical parameter vectors under the Pitman's closeness criterion (Wu J.) 47: 363-368 (2019)

Complete dislocated b-metric space

α -dominated set-valued mappings and some generalised fixed point results (Shoab A., Rasham T., Hussain N. & Arshad M.) 47: 235-243 (2019)

Complex hybrid systems

Integrating runtime validation and hardware-in-the-loop (HiL) testing with V & V in complex hybrid systems (Dewasurendra S.D., Vidarapathirana A.C. & Abeyratne S.G.) 47: 393-408 (2019)

Compositional testing

Integrating runtime validation and hardware-in-the-loop (HiL) testing with V & V in complex hybrid systems (Dewasurendra S.D., Vidarapathirana A.C. & Abeyratne S.G.) 47: 393-408 (2019)

Compositional verification

Integrating runtime validation and hardware-in-the-loop (HiL) testing with V & V in complex hybrid systems (Dewasurendra S.D., Vidarapathirana A.C. & Abeyratne S.G.) 47: 393-408 (2019)

Conducting polymer

Silver-montmorillonite-conducting polymer composite materials as low-cost oxygen reduction catalysts (Senarathna K.G.C. & Rajapakse R.M.G.) 47: 409-420 (2019)

Correlation coefficient

Mapping ilmenite deposit in Pulmudai, Sri Lanka using a hyperspectral imaging-based surface mineral mapping method (Ekanayake E.M.M.B., Vithana S.S.P., Ekanayake E.M.H.E.B., Rathnayake A.R.M.A.N., Abeysekara A.M.R., Oorloff T.S.J., Herath H.M.V.R., Godaliyadda G.M.R.I., Ekanayake M.P.B. & Senaratne A.) 47: 271-284 (2019)

Cow dung

Isolation of a cellulase producing *Bacillus cereus* from cow dung and determination of the kinetic properties of the crude enzyme (Croos A.M.B., Rajendran S. & Ranganathan K.) 47: 261-267 (2019)

Cyanobacteria

Geosmin contamination status of raw and treated waters in Sri Lanka (Ganegoda S., Chinthaka S.D.M. & Manage P.M.) 47: 245-259 (2019)

Data engineering

Mapping ilmenite deposit in Pulmudai, Sri Lanka using a hyperspectral imaging-based surface mineral mapping method (Ekanayake E.M.M.B., Vithana S.S.P., Ekanayake E.M.H.E.B., Rathnayake A.R.M.A.N., Abeysekara A.M.R., Oorloff T.S.J., Herath H.M.V.R., Godaliyadda G.M.R.I., Ekanayake M.P.B. & Senaratne A.) 47: 271-284 (2019)

Data mining

Efficient label ordering for improving multi-label classifier chain accuracy (Ali T. & Asghar S.) 47: 175-184 (2019)

Decomposition

Austroepatorium inulifolium invasion alters litter dynamics in *Cymbopogon nardus*-dominated manmade grasslands (Piyasinghe I.P.K., Gunatilake J. & Madawala H.M.S.P.) 47: 39-49 (2019)

Degraded grasslands

Austroepatorium inulifolium invasion alters litter dynamics in *Cymbopogon nardus*-dominated manmade grasslands (Piyasinghe I.P.K., Gunatilake J. & Madawala H.M.S.P.) 47: 39-49 (2019)

Degree-based topological index

Computational aspects of line graph of carbon nanocones (Hussain Z., Munir M., Nazeer W., Saleem M.S., Kang S.M. & Kwun Y.C.) 47: 435-443 (2019)

Deterministic and stochastic pedestrian flows

Comparative study of deterministic and stochastic pedestrian motions (Pradhan R.K., Shrestha S. & Tiwari S.) 47: 213-220 (2019)

Diagonal shear test

Performance of un-reinforced burned clay brick masonry walls retrofitted with locally available materials (Mendis W.S.W., De Silva G.S.Y. & De Silva G.H.M.J.S.) 47: 29-38 (2019)

Digital libraries

Efficient label ordering for improving multi-label classifier chain accuracy (Ali T. & Asghar S.) 47: 175-184 (2019)

Drought tolerance

Germination and seedling growth responses of Sri Lankan grown sesame/thala (*Sesamum indicum* L.) for simulated drought Conditions (Dissanayake I.A.J.K., Ranwala S.M.W. & Perera S.S.N.) 47: 479-490 (2019)

Dry days

Trends in extreme rainfall events in Sri Lanka, 1961–2010 (Thevakaran A., Suppiah R. & Sonnadara U.) 47: 285-295 (2019)

Electrocatalyst

Silver-montmorillonite-conducting polymer composite materials as low-cost oxygen reduction catalysts (Senarathna K.G.C. & Rajapakse R.M.G.) 47: 409-420 (2019)

Electrochemical impedance spectroscopy

Characterisation of an ionic liquid-based gel polymer electrolyte for potential applications (Prasadini K.W., Perera K.S. & Vidanapathirana K.P.) 47: 133-138 (2019)

Electrochemical stability window

Characterisation of an ionic liquid-based gel polymer electrolyte for potential applications (Prasadini K.W., Perera K.S. & Vidanapathirana K.P.) 47: 133-138 (2019)

Elegance

Structural form as an analogical source for structures of nature: two examples (Dias P. & Hahn R.) 47: 323-331 (2019)

Energy supplements

Chemical composition and gross energy content of commonly available animal feedstuff in Sri Lanka (Pavithra S., Vidanarachchi J.K., Sarmini M. & Premaratne S.) 47: 79-87 (2019)

ERA Interim

Numerical modelling of the spatial variation of sediment transport using wave climate schematization method - a case study of west coast of Sri Lanka (Jayathilaka R.M.R.M. & Fernando M.C.S.) 47: 421-433 (2019)

Extreme events

Trends in extreme rainfall events in Sri Lanka, 1961–2010 (Thevakaran A., Suppiah R. & Sonnadara U.) 47: 285-295 (2019)

Fatty acids

Comparison of inter-varietal differences in chemical composition and nutritional properties of coconut testa flour (Marasinghe S.S.K., Marikkar J.M.N., Yalagama C., Wimalasiri S., Seneviratne G., Weerasooriya R. & Liyanage R.) 47: 349-356 (2019)

Feeding

Some biological aspects and molecular variations in frigate tuna, *Auxis thazard* of the coastal waters around Sri Lanka (Herath D.R., Perera H.A.C.C. & Hettiarachchi G.H.C.M.) 47: 333-340 (2019)

Fermented banana flour

Isolation and identification of lactic acid bacteria with probiotic potential from fermented flour of selected banana varieties grown in Sri Lanka (Divisekera D.M.W.D., Samarasekera J.K.R.R., Hettiarachchi C., Gooneratne J., Choudhary M.I. & Gopalakrishnan S.) 47: 3-6 (2019)

Fifth leaf stage

Varietal diversity of Sri Lankan traditional rice based on sensitivity to temperature and photoperiod at vegetative stage (Rathnathunga E.U.U., Senanayake G., Seneweera S. & Geekiyana S.) 47: 51-68 (2019)

Final coalgebra

Zp as a final coalgebra obtained by Cauchy completing the initial algebra (Manokaran A., Ratnayake J. & Jayewardene R.) 47: 105-112 (2019)

Fisher's discriminant analysis

Mapping ilmenite deposit in Pulmudai, Sri Lanka using a hyperspectral imaging-based surface mineral mapping method (Ekanayake E.M.M.B., Vithana S.S.P., Ekanayake E.M.H.E.B., Rathnayake A.R.M.A.N., Abeysekera A.M.R., Oorloff T.S.J., Herath H.M.V.R., Godaliyadda G.M.R.I., Ekanayake M.P.B. & Senaratne A.) 47: 271-284 (2019)

Floodplain soil

Effect of micronutrient fortified fertiliser application on the growth and yield components of tomato plant in floodplain soils of Bangladesh (Sarker Md. M.H., Moslehuddin A.Z. Md., Jahiruddin M., Islam M.R. & Talukder R.) 47: 161-168 (2019)

Fractional nonlinear evolution equations

Closed form wave solutions to the time fractional Boussinesq-type equation and the Zakharov-Kuznetsov equation (Islam M.N., Khan Md. A. & Akbar M.A.) 47: 149-160 (2019)

Frigate tuna

Some biological aspects and molecular variations in frigate tuna, *Auxis thazard* of the coastal waters around Sri Lanka (Herath D.R., Perera H.A.C.C. & Hettiarachchi G.H.C.M.) 47: 333-340 (2019)

Gamma family of distribution

On gamma inverse Weibull distribution (Abbas S., Hameed M., Cakmakyapan S. & Malik S.N.) 47: 445-453 (2019)

Gas chromatography-mass spectrometry

Geosmin contamination status of raw and treated waters in Sri Lanka (Ganegoda S., Chinthaka S.D.M. & Manage P.M.) 47: 245-259 (2019)

Gel polymer electrolytes

Characterisation of an ionic liquid-based gel polymer electrolyte for potential applications (Prasadini K.W., Perera K.S., & Vidanapathirana K.P.) 47: 133-138 (2019)

Gene expression

Effect of *Macrophomina phaseolina* on growth and expression of defense related genes in *Arabidopsis thaliana* (Saima S. & Wu G.) 47: 113-120 (2019)

General coefficient

On gamma inverse Weibull distribution (Abbas S., Hameed M., Cakmakyapan S. & Malik S.N.) 47: 445-453 (2019)

General Randic index

Computational aspects of line graph of carbon nanocones (Hussain Z., Munir M., Nazeer W., Saleem M.S., Kang S.M. & Kwun Y.C.) 47: 435-443 (2019)

Generalized (G'/G)-expansion method

Closed form wave solutions to the time fractional Boussinesq-type equation and the Zakharov-Kuznetsov equation (Islam M.N., Khan Md. A. & Akbar M.A.) 47: 149-160 (2019)

Geometry

Structural form as an analogical source for structures of nature: two examples (Dias P. & Hahn R.) 47: 323-331 (2019)

Geosmin

Geosmin contamination status of raw and treated waters in Sri Lanka (Ganegoda S., Chinthaka S.D.M. & Manage P.M.) 47: 245-259 (2019)

Germination

Germination and seedling growth responses of Sri Lankan grown sesame/thala (*Sesamum indicum* L.) for simulated drought Conditions (Dissanayake I.A.J.K., Ranwala S.M.W. & Perera S.S.N.) 47: 479-490 (2019)

Gingelly

Germination and seedling growth responses of Sri Lankan grown sesame/thala (*Sesamum indicum* L.) for simulated drought Conditions (Dissanayake I.A.J.K., Ranwala S.M.W. & Perera S.S.N.) 47: 479-490 (2019)

***GluB-1* promoter**

Cloning and characterization of an endosperm specific *glutelin B1* promoter from Sri Lankan rice (*Oryza sativa* L. ssp. *indica*) variety Bg 250 (Kajendran K., Chandrasekharan N.V., Hettiarachchi C.M., Nanayakkara A.K., Elvitigala A.S. & Wijesundera W.S.S.) 47: 383-391 (2019)

Graph dominated mapping

α -dominated set-valued mappings and some generalised fixed point results (Shoab A., Rasham T., Hussain N. & Arshad M.) 47: 235-243 (2019)

Grasses and tree species

Chemical composition and gross energy content of commonly available animal feedstuff in Sri Lanka (Pavithra S., Vidanarachchi J.K., Sarmini M. & Premaratne S.) 47: 79-87 (2019)

Growth

Some biological aspects and molecular variations in frigate tuna, *Auxis thazard* of the coastal waters around Sri Lanka (Herath D.R., Perera H.A.C.C. & Hettiarachchi G.H.C.M.) 47: 333-340 (2019)

Hardware-in-the-loop testing

Integrating runtime validation and hardware-in-the-loop (HiL) testing with V & V in complex hybrid systems (Dewasurendra S.D., Vidarapathirana A.C. & Abeyratne S.G.) 47: 393-408 (2019)

Headspace solid-phase micro extraction

Geosmin contamination status of raw and treated waters in Sri Lanka (Ganegoda S., Chinthaka S.D.M. & Manage P.M.) 47: 245-259 (2019)

Hopane

Molecular indicators of early stage diagenesis in the tropical coastal Bolgoda Lake, Sri Lanka (Ratnayake A.S., Sampei Y. & Ratnayake N.P.) 47: 69-77 (2019)

Hosoya polynomial

Hosoya polynomial and topological indices of n -linear benzene (Nizami A.R., Idrees M., Amin N. & Iqbal Z.) 47: 169-174 (2019)

Human and vector population

Mathematical model for malaria with mosquito-dependent coefficient for human population with exposed class (Singh R., Ali S., Jain M. & Raina A.A.) 47: 185-198 (2019)

Human leukocyte antigen (HLA) typing

Evaluating novel effective primers to amplify heterozygous alleles of second, third and fourth exons of HLA-A; -B; -C; -DRB1 and -DQB1 loci using sequencing-based typing (Perera P.C.D., Upamali B.D.N., Gunawardene Y.I.N.S. & Dassanayake R.S.) 47: 341-348 (2019)

Human opinion dynamics

Human opinion dynamics-based optimization for in-band spectrum sensing in cognitive radio networks (Garg R. & Saluja N.) 47: 467-477 (2019)

Initial algebra

Z_p as a final coalgebra obtained by Cauchy completing the initial algebra (Manokaran A., Ratnayake J. & Jayewardene R.) 47: 105-112 (2019)

In-plane load

Performance of un-reinforced burned clay brick masonry walls retrofitted with locally available materials (Mendis W.S.W., De Silva G.S.Y. & De Silva G.H.M.J.S.) 47: 29-38 (2019)

Inverse Weibull distribution

On gamma inverse Weibull distribution (Abbas S., Hameed M., Cakmakyapan S. & Malik S.N.) **47**: 445-453 (2019)

Ionic liquids

Characterisation of an ionic liquid-based gel polymer electrolyte for potential applications (Prasadini K.W., Perera K.S. & Vidanapathirana K.P.) **47**: 133-138 (2019)

KMD gates

Design of fault-tolerant reversible Vedic multiplier in quantum cellular automata (Kamaraj A. & Marichamy P.) **47**: 371-382 (2019)

Lactic acid bacteria

Isolation and identification of lactic acid bacteria with probiotic potential from fermented flour of selected banana varieties grown in Sri Lanka (Divisekera D.M.W.D., Samarasekera J.K.R.R., Hettiarachchi C., Gooneratne J., Choudhary M.I. & Gopalakrishnan S.) **47**: 3-6 (2019)

Lanka basin

Estimating sedimentary thickness of Lanka Basin using digitized scanned seismic sections (Silva K.C.C., Gamage N.G.S.S. & Weerasinghe D.A.) **47**: 357-362 (2019)

Leaf spot disease severity

Intensity of leaf spot and rough bark diseases in cinnamon accessions collected from major cinnamon growing areas of Sri Lanka (Azad R., Kumara K.L.W., Senanayake G., Ranawaka R.A.A.K., Pushpakumara D.K.N.G. & Geekiyana S.) **47**: 297-305 (2019)

Line graph

Computational aspects of line graph of carbon nanocones (Hussain Z., Munir M., Nazeer W., Saleem M.S., Kang S.M. & Kwun Y.C.) **47**: 435-443 (2019)

Linear benzene

Hosoya polynomial and topological indices of n -linear benzene (Nizami A.R., Idrees M., Amin N. & Iqbal Z.) **47**: 169-174 (2019)

Litter inputs

Austroepatorium inulifolium invasion alters litter dynamics in *Cymbopogon nardus*-dominated manmade grasslands (Piyasinghe I.P.K., Gunatilake J. & Madawala H.M.S.P.) **47**: 39-49 (2019)

Litter quality

Austroepatorium inulifolium invasion alters litter dynamics in *Cymbopogon nardus*-dominated manmade grasslands (Piyasinghe I.P.K., Gunatilake J. & Madawala H.M.S.P.) **47**: 39-49 (2019)

Low density polyethylene

Effect of an organotitanate coupling agent on properties of calcium carbonate filled low-density polyethylene and natural rubber composites (Sampath W.D.M., Egodage S.M. & Edirisinghe D.G.) **47**: 17-27 (2019)

Macrophomina phaseolina

Effect of *Macrophomina phaseolina* on growth and expression of defense related genes in *Arabidopsis thaliana* (Saima S. & Wu G.) **47**: 113-120 (2019)

Maximum likelihood

On gamma inverse Weibull distribution (Abbas S., Hameed M., Cakmakyapan S. & Malik S.N.) **47**: 445-453 (2019)

Mean squared error

Estimation of the parameters in two linear models with some of the identical parameter vectors under the Pitman's closeness criterion (Wu J.) **47**: 363-368 (2019)

Mean squared error

Utilising bivariate auxiliary information for enhanced estimation of population mean under simple and stratified random sampling schemes (Javed M., Irfan M. & Pang T.) **47**: 199-211 (2019)

Microminerals

Comparison of inter-varietal differences in chemical composition and nutritional properties of coconut testa flour (Marasinghe S.S.K., Marikkar J.M.N., Yalagama C., Wimalasiri S., Seneviratne G., Weerasooriya R. & Liyanage R.) **47**: 349-356 (2019)

Micronutrients

Effect of micronutrient fortified fertiliser application on the growth and yield components of tomato plant in floodplain soils of Bangladesh (Sarker Md. M.H., Moslehuddin A.Z. Md., Jahiruddin M., Islam M.R. & Talukder R.) **47**: 161-168 (2019)

Microscopic model

Comparative study of deterministic and stochastic pedestrian motions (Pradhan R.K., Shrestha S. & Tiwari S.) **47**: 213-220 (2019)

Minerals

Chemical composition and gross energy content of commonly available animal feedstuff in Sri Lanka (Pavithra S., Vidanarachchi J.K., Sarmini M. & Premaratne S.) **47**: 79-87 (2019)

Monsoons

Trends in extreme rainfall events in Sri Lanka, 1961–2010 (Thevakaran A., Suppiah R. & Sonnadara U.) **47**: 285-295 (2019)

Montmorillonite

Silver-montmorillonite-conducting polymer composite materials as low-cost oxygen reduction catalysts (Senarathna K.G.C. & Rajapakse R.M.G.) **47**: 409-420 (2019)

Morphodynamics

Numerical modelling of the spatial variation of sediment transport using wave climate schematization method - a case study of west coast of Sri Lanka (Jayathilaka R.M.R.M. & Fernando M.C.S.) **47**: 421-433 (2019)

Morphological acceleration

Numerical modelling of the spatial variation of sediment transport using wave climate schematization method - a case study of west coast of Sri Lanka (Jayathilaka R.M.R.M. & Fernando M.C.S.) **47**: 421-433 (2019)

M-polynomial

Computational aspects of line graph of carbon nanocones (Hussain Z., Munir M., Nazeer W., Saleem M.S., Kang S.M. & Kwun Y.C.) **47**: 435-443 (2019)

Multi-label classification

Efficient label ordering for improving multi-label classifier chain accuracy (Ali T. & Asghar S.) **47**: 175-184 (2019)

Nachchaduwa

Distributed modelling of water resources and pollute transport in Malwathu Oya Basin, Sri Lanka (Dahanayake A.C. & Rajapakse R.L.H.L.) **47**: 307-321 (2019)

Natural rubber

Effect of an organotitanate coupling agent on properties of calcium carbonate filled low-density polyethylene and natural rubber composites (Sampath W.D.M., Egodage S.M. & Edirisinghe D.G.) **47**: 17-27 (2019)

Necrotrophic fungus

Effect of *Macrophomina phaseolina* on growth and expression of defense related genes in *Arabidopsis thaliana* (Saima S. & Wu G.) **47**: 113-120 (2019)

NGDC

Estimating sedimentary thickness of Lanka Basin using digitized scanned seismic sections (Silva K.C.C., Gamage N.G.S.S. & Weerasinghe D.A.) **47**: 357-362 (2019)

Nitrogen

Distributed modelling of water resources and pollute transport in Malwathu Oya Basin, Sri Lanka (Dahanayake A.C. & Rajapakse R.L.H.L.) **47**: 307-321 (2019)

Nutrient concentrations

Distributed modelling of water resources and pollute transport in Malwathu Oya Basin, Sri Lanka (Dahanayake A.C. & Rajapakse R.L.H.L.) **47**: 307-321 (2019)

Nutrient release patterns

Austroepatorium inulifolium invasion alters litter dynamics in *Cymbopogon nardus*-dominated manmade grasslands (Piyasinghe I.P.K., Gunatilake J. & Madawala H.M.S.P.) **47**: 39-49 (2019)

OGFC

Aggregate interlocking of open-graded friction courses with compaction effort (Mampearachchi W.K., Masakorala S.R. & Umasangar K.) **47**: 139-146 (2019)

Optimum compaction

Aggregate interlocking of open-graded friction courses with compaction effort (Mampearachchi W.K., Masakorala S.R. & Umasangar K.) **47**: 139-146 (2019)

Oryza sativa

Varietal diversity of Sri Lankan traditional rice based on sensitivity to temperature and photoperiod at vegetative stage (Rathnathunga E.U.U., Senanayake G., Seneweera S. & Geekiyanage S.) **47**: 51-68 (2019)

Oxygen reduction reaction

Silver-montmorillonite-conducting polymer composite materials as low-cost oxygen reduction catalysts (Senarathna K.G.C. & Rajapakse R.M.G.) **47**: 409-420 (2019)

P-adic integers

\mathbb{Z}_p as a final coalgebra obtained by Cauchy completing the initial algebra (Manokaran A., Ratnayake J. & Jayewardene R.) **47**: 105-112 (2019)

Partial order

α -dominated set-valued mappings and some generalised fixed point results (Shoab A., Rasham T., Hussain N. & Arshad M.) **47**: 235-243 (2019)

Passive margins

Estimating sedimentary thickness of Lanka Basin using digitized scanned seismic sections (Silva K.C.C., Gamage N.G.S.S. & Weerasinghe D.A.) 47: 357-362 (2019)

Pathogenesis related proteins

Effect of *Macrophomina phaseolina* on growth and expression of defense related genes in *Arabidopsis thaliana* (Saima S. & Wu G.) 47: 113-120 (2019)

PCR

Evaluating novel effective primers to amplify heterozygous alleles of second, third and fourth exons of HLA-A; -B; -C; -DRB1 and -DQB1 loci using sequencing-based typing (Perera P.C.D., Upamali B.D.N., Gunawardene Y.I.N.S. & Dassanayake R.S.) 47: 341-348 (2019)

Pedestrian flow

Comparative study of deterministic and stochastic pedestrian motions (Pradhan R.K., Shrestha S. & Tiwari S.) 47: 213-220 (2019)

Percent relative efficiency

Utilising bivariate auxiliary information for enhanced estimation of population mean under simple and stratified random sampling schemes (Javed M., Irfan M. & Pang T.) 47: 199-211 (2019)

Phosphorus

Distributed modelling of water resources and pollute transport in Malwathu Oya Basin, Sri Lanka (Dahanayake A.C. & Rajapakse R.L.H.L.) 47: 307-321 (2019)

Photoperiod sensitivity

Varietal diversity of Sri Lankan traditional rice based on sensitivity to temperature and photoperiod at vegetative stage (Rathnathunga E.U.U., Senanayake G., Seneweera S. & Geekiyanage S.) 47: 51-68 (2019)

Physico-mechanical properties

Effect of an organotitanate coupling agent on properties of calcium carbonate filled low-density polyethylene and natural rubber composites (Sampath W.D.M., Egodage S.M. & Edirisinghe D.G.) 47: 17-27 (2019)

Pitman's closeness criterion

Estimation of the parameters in two linear models with some of the identical parameter vectors under the Pitman's closeness criterion (Wu J.) 47: 363-368 (2019)

Polymorphism

Evaluating novel effective primers to amplify heterozygous alleles of second, third and fourth exons of HLA-A; -B; -C; -DRB1 and -DQB1 loci using sequencing-based typing (Perera P.C.D., Upamali B.D.N., Gunawardene Y.I.N.S. & Dassanayake R.S.) 47: 341-348 (2019)

Primary gem

Sedimentary geochemistry of alluvial overburden in the primary gem deposit of Pelmadulla, Sri Lanka (Jayawardana D.T., Madusanka R.M.T.D., Jayasinghe R.M.N.P.K., Adikaram A.M.N.M. & Udagedara D.T.) 47: 221-234 (2019)

Primary user

Human opinion dynamics-based optimization for in-band spectrum sensing in cognitive radio networks (Garg R. & Saluja N.) 47: 467-477 (2019)

Principal component analysis

Mapping ilmenite deposit in Pulmudai, Sri Lanka using a hyperspectral imaging-based surface mineral mapping method (Ekanayake E.M.M.B., Vithana S.S.P., Ekanayake E.M.H.E.B., Rathnayake A.R.M.A.N., Abeysekera A.M.R., Oorloff T.S.J., Herath H.M.V.R., Godaliyadda G.M.R.I., Ekanayake M.P.B. & Senaratne A.) 47: 271-284 (2019)

Probability-based approach

Mapping ilmenite deposit in Pulmudai, Sri Lanka using a hyperspectral imaging-based surface mineral mapping method (Ekanayake E.M.M.B., Vithana S.S.P., Ekanayake E.M.H.E.B., Rathnayake A.R.M.A.N., Abeysekera A.M.R., Oorloff T.S.J., Herath H.M.V.R., Godaliyadda G.M.R.I., Ekanayake M.P.B. & Senaratne A.) 47: 271-284 (2019)

Probiotics

Isolation and identification of lactic acid bacteria with probiotic potential from fermented flour of selected banana varieties grown in Sri Lanka (Divisekera D.M.W.D., Samarasekera J.K.R.R., Hettiarachchi C., Gooneratne J., Choudhary M.I. & Gopalakrishnan S.) 47: 3-6 (2019)

Proximate composition

Comparison of inter-varietal differences in chemical composition and nutritional properties of coconut testa flour (Marasinghe S.S.K., Marikkar J.M.N., Yalagama C., Wimalasiri S., Seneviratne G., Weerasooriya R. & Liyanage R.) 47: 349-356 (2019)

Recent sediments

Molecular indicators of early stage diagenesis in the tropical coastal Bolgoda Lake, Sri Lanka (Ratnayake A.S., Sampei Y. & Ratnayake N.P.) 47: 69-77 (2019)

Region of convergence

Human opinion dynamics-based optimization for in-band spectrum sensing in cognitive radio networks (Garg R. & Saluja N.) 47: 467-477 (2019)

Remote sensing

Mapping ilmenite deposit in Pulmudai, Sri Lanka using a hyperspectral imaging-based surface mineral mapping method (Ekanayake E.M.M.B., Vithana S.S.P., Ekanayake E.M.H.E.B., Rathnayake A.R.M.A.N., Abeyssekera A.M.R., Oorloff T.S.J., Herath H.M.V.R., Godaliyadda G.M.R.I., Ekanayake M.P.B. & Senaratne A.) 47: 271-284 (2019)

Retrofitting

Performance of un-reinforced burned clay brick masonry walls retrofitted with locally available materials (Mendis W.S.W., De Silva G.S.Y. & De Silva G.H.M.J.S.) 47: 29-38 (2019)

Reversible logic

Design of fault-tolerant reversible Vedic multiplier in quantum cellular automata (Kamaraj A. & Marichamy P.) 47: 371-382 (2019)

Rough bark disease severity

Intensity of leaf spot and rough bark diseases in cinnamon accessions collected from major cinnamon growing areas of Sri Lanka (Azad R., Kumara K.L.W., Senanayake G., Ranawaka R.A.A.K., Pushpakumara D.K.N.G. & Geekiyanage S.) 47: 297-305 (2019)

Runtime validation

Integrating runtime validation and hardware-in-the-loop (HiL) testing with V & V in complex hybrid systems (Dewasurendra S.D., Vidarapathirana A.C. & Abeyratne S.G.) 47: 393-408 (2019)

Sanger sequencing

Evaluating novel effective primers to amplify heterozygous alleles of second, third and fourth exons of HLA-A; -B; -C; -DRB1 and -DQB1 loci using sequencing-based typing (Perera P.C.D., Upamali B.D.N., Gunawardene Y.I.N.S. & Dassanayake R.S.) 47: 341-348 (2019)

Seasonal rainfall

Trends in extreme rainfall events in Sri Lanka, 1961–2010 (Thevakaran A., Suppiah R. & Sonnadara U.) 47: 285-295 (2019)

Secondary user

Human opinion dynamics-based optimization for in-band spectrum sensing in cognitive radio networks (Garg R. & Saluja N.) 47: 467-477 (2019)

Sediment transport

Numerical modelling of the spatial variation of sediment transport using wave climate schematization method - a case study of west coast of Sri Lanka (Jayathilaka R.M.R.M. & Fernando M.C.S.) 47: 421-433 (2019)

Sediment

Sedimentary geochemistry of alluvial overburden in the primary gem deposit of Pelmadulla, Sri Lanka (Jayawardana D.T., Madusanka R.M.T.D., Jayasinghe R.M.N.P.K., Adikaram A.M.N.M. & Udagedara D.T.) 47: 221-234 (2019)

Sedimentary geochemistry

Sedimentary geochemistry of alluvial overburden in the primary gem deposit of Pelmadulla, Sri Lanka (Jayawardana D.T., Madusanka R.M.T.D., Jayasinghe R.M.N.P.K., Adikaram A.M.N.M. & Udagedara D.T.) 47: 221-234 (2019)

Sediment-water interface

Molecular indicators of early stage diagenesis in the tropical coastal Bolgoda Lake, Sri Lanka (Ratnayake A.S., Sampei Y. & Ratnayake N.P.) 47: 69-77 (2019)

Seedling growth

Germination and seedling growth responses of Sri Lankan grown sesame/thala (*Sesamum indicum* L.) for simulated drought Conditions (Dissanayake I.A.J.K., Ranwala S.M.W. & Perera S.S.N.) 47: 479-490 (2019)

Seismic resistant

Performance of un-reinforced burned clay brick masonry walls retrofitted with locally available materials (Mendis W.S.W., De Silva G.S.Y. & De Silva G.H.M.J.S.) 47: 29 – 38 (2019)

Seismic surveys

Estimating sedimentary thickness of Lanka Basin using digitized scanned seismic sections (Silva K.C.C., Gamage N.G.S.S. & Weerasinghe D.A.) 47: 357-362 (2019)

Sesame

Germination and seedling growth responses of Sri Lankan grown sesame/thala (*Sesamum indicum* L.) for simulated drought Conditions (Dissanayake I.A.J.K., Ranwala S.M.W. & Perera S.S.N.) 47: 479-490 (2019)

SGC

Aggregate interlocking of open-graded friction courses with compaction effort (Mampearachchi W.K., Masakorala S.R. & Umasangar K.) 47: 139-146 (2019)

Silver

Silver-montmorillonite-conducting polymer composite materials as low-cost oxygen reduction catalysts (Senarathna K.G.C. & Rajapakse R.M.G.) 47: 409-420 (2019)

Social force

Comparative study of deterministic and stochastic pedestrian motions (Pradhan R.K., Shrestha S. & Tiwari S.) **47**: 213-220 (2019)

Sri Lanka

Austroepatorium inulifolium invasion alters litter dynamics in *Cymbopogon nardus*-dominated manmade grasslands (Piyasinghe I.P.K., Gunatilake J. & Madawala H.M.S.P.) **47**: 39-49 (2019)

Sri Lanka

Chemical composition and gross energy content of commonly available animal feedstuff in Sri Lanka (Pavithra S., Vidanarachchi J.K., Sarmini M. & Premaratne S.) **47**: 79-87 (2019)

Stability analysis

Mathematical model for malaria with mosquito-dependent coefficient for human population with exposed class (Singh R., Ali S., Jain M. & Raina A.A.) **47**: 185-198 (2019)

Stock identification

Some biological aspects and molecular variations in frigate tuna, *Auxis thazard* of the coastal waters around Sri Lanka (Herath D.R., Perera H.A.C.C. & Hettiarachchi G.H.C.M.) **47**: 333-340 (2019)

Stratified random sampling

Utilising bivariate auxiliary information for enhanced estimation of population mean under simple and stratified random sampling schemes (Javed M., Irfan M. & Pang T.) **47**: 199-211 (2019)

Structure

Structural form as an analogical source for structures of nature: two examples (Dias P. & Hahn R.) **47**: 323-331 (2019)

Sulphuric acid attack

Durability properties of alkali pozzolan cement (APC) (Kulasuriya C., Dias W.P.S. & Vimonsatit V.) **47**: 121-131 (2019)

SWAN

Numerical modelling of the spatial variation of sediment transport using wave climate schematization method - a case study of west coast of Sri Lanka (Jayathilaka R.M.R.M. & Fernando M.C.S.) **47**: 421-433 (2019)

Symmetric division index

Computational aspects of line graph of carbon nanocones (Hussain Z., Munir M., Nazeer W., Saleem M.S., Kang S.M. & Kwun Y.C.) **47**: 435-443 (2019)

Taste and odour

Geosmin contamination status of raw and treated waters in Sri Lanka (Ganegoda S., Chinthaka S.D.M. & Manage P.M.) **47**: 245-259 (2019)

Temperature

Varietal diversity of Sri Lankan traditional rice based on sensitivity to temperature and photoperiod at vegetative stage (Rathnathunga E.U.U., Senanayake G., Seneweera S. & Geekiyanage S.) **47**: 51-68 (2019)

Tetracycline (TET)

Occurrence and distribution of tetracycline resistance determinants and their pollution profile in selected aquaculture environments in Sri Lanka (Liyana G.Y. & Manage P.M.) **47**: 455-465 (2019)

Text classification

Efficient label ordering for improving multi-label classifier chain accuracy (Ali T. & Asghar S.) **47**: 175-184 (2019)

Thermostable

Isolation of a cellulase producing *Bacillus cereus* from cow dung and determination of the kinetic properties of the crude enzyme (Croos A.M.B., Rajendran S. & Ranganathan K.) **47**: 261-267 (2019)

Thickness model

Estimating sedimentary thickness of Lanka Basin using digitized scanned seismic sections (Silva K.C.C., Gamage N.G.S.S. & Weerasinghe D.A.) **47**: 357-362 (2019)

Time fractional Boussinesq type equation

Closed form wave solutions to the time fractional Boussinesq-type equation and the Zakharov-Kuznetsov equation (Islam M.N., Khan Md. A. & Akbar M.A.) **47**: 149-160 (2019)

Time fractional ZK equation

Closed form wave solutions to the time fractional Boussinesq-type equation and the Zakharov-Kuznetsov equation (Islam M.N., Khan Md. A. & Akbar M.A.) **47**: 149-160 (2019)

Titanate coupling agent

Effect of an organotitanate coupling agent on properties of calcium carbonate filled low-density polyethylene and natural rubber composites (Sampath W.D.M., Egodage S.M. & Edirisinghe D.G.) **47**: 17-27 (2019)

Tomato

Effect of micronutrient fortified fertiliser application on the growth and yield components of tomato plant in floodplain soils of Bangladesh (Sarker Md. M.H., Moslehuddin A.Z. Md., Jahiruddin M., Islam M.R. & Talukder R.) 47: 161-168 (2019)

Topological indices

Hosoya polynomial and topological indices of n -linear benzene (Nizami A.R., Idrees M., Amin N. & Iqbal Z.) 47: 169-174 (2019)

Traditional rice

Varietal diversity of Sri Lankan traditional rice based on sensitivity to temperature and photoperiod at vegetative stage (Rathnathunga E.U.U., Senanayake G., Seneweera S. & Geekiyanage S.) 47: 51-68 (2019)

Transgenic rice

Cloning and characterization of an endosperm specific *glutelin B1* promoter from Sri Lankan rice (*Oryza sativa* L. ssp. *indica*) variety Bg 250 (Kajendran K., Chandrasekharan N.V., Hettiarachchi C.M., Nanayakkara A.K., Elvitigala A.S. & Wijesundera W.S.S.) 47: 383-391 (2019)

Transmission dynamics

Mathematical model for malaria with mosquito-dependent coefficient for human population with exposed class (Singh R., Ali S., Jain M. & Raina A.A.) 47: 185-198 (2019)

Travelling wave transformation

Closed form wave solutions to the time fractional Boussinesq-type equation and the Zakharov-Kuznetsov equation (Islam M.N., Khan Md. A. & Akbar M.A.) 47: 149-160 (2019)

TSS

Distributed modelling of water resources and pollute transport in Malwathu Oya Basin, Sri Lanka (Dahanayake A.C. & Rajapakse R.L.H.L.) 47: 307-321 (2019)

Two normal linear models

Estimation of the parameters in two linear models with some of the identical parameter vectors under the Pitman's closeness criterion (Wu J.) 47: 363-368 (2019)

Un-reinforced brick masonry

Performance of un-reinforced burned clay brick masonry walls retrofitted with locally available materials (Mendis W.S.W., De Silva G.S.Y. & De Silva G.H.M.J.S.) 47: 29-38 (2019)

Urdhwa Triyakbhyam

Design of fault-tolerant reversible Vedic multiplier in quantum cellular automata (Kamaraj A. & Marichamy P.) 47: 371-382 (2019)

V&V – testing integration

Integrating runtime validation and hardware-in-the-loop (HiL) testing with V & V in complex hybrid systems (Dewasurendra S.D., Vidarapathirana A.C. & Abeyratne S.G.) 47: 393-408 (2019)

Vedic multiplication

Design of fault-tolerant reversible Vedic multiplier in quantum cellular automata (Kamaraj A. & Marichamy P.) 47: 371-382 (2019)

Water absorption

Durability properties of alkali pozzolan cement (APC) (Kulasuriya C., Dias W.P.S. & Vimonsatit V.) 47: 121-131 (2019)

WEP model

Distributed modelling of water resources and pollute transport in Malwathu Oya Basin, Sri Lanka (Dahanayake A.C. & Rajapakse R.L.H.L.) 47: 307-321 (2019)

Wet days

Trends in extreme rainfall events in Sri Lanka, 1961–2010 (Thevakaran A., Suppiah R. & Sonnadara U.) 47: 285-295 (2019)

Zagreb index

Computational aspects of line graph of carbon nanocones (Hussain Z., Munir M., Nazeer W., Saleem M.S., Kang S.M. & Kwun Y.C.) 47: 435-443 (2019)