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**Type your title here using 11-pt Times New Roman bold font on 12-pt line spacing.
The length of the title of the article must not exceed 2 lines.**

Author Names (Use 10-pt Times New Roman font and 12-pt line spacing.

First Authors, Co-Author 1, Co-Author 2, and the last Author.

Note: Use (,) between the authors and put (and) before the last authors

Identify the author's affiliation by superscript characters behind the author's name

Author Affiliations

(Use 9-pt Times New Roman with 12-pt line spacing. Include institutional addresses for all authors.

Place superscript number in front of the author's affiliation corresponding to the author's name.

The authors with the same affiliation must be superscripted with the same number)

Abstract (10-pt bold font on 12-pt line spacing)

For abstract, write with 9-pt Times New Roman and 12-pt spacing. The first line is indented

0.5 inch. The abstract's length should be up to 250 words. The abstract must be well-concisely writing and cover all main parts; 1) *Introduction* with rationale 2) *Objectives* (why do we care about the problem? What practical, scientific, theoretical or artistic gap is your research filling? 3) *Methodology*: (what did you actually do to get your results? e.g. analyzed 3 novels, completed a series of 5 oil paintings, interviewed 17 students) 4) *Result and Discussion* (As a result of completing the above procedure, what did you learn/invent/create?) 5) *Conclusions* (What are the larger implications of your findings related to the objectives)

Use 1)2)3) to categorize the contents and please do not use 1. 2. 3. Moreover, abstract should have just a few paragraphs. It may be better to complete it within 1-2 paragraphs. Please check "word count" and try to reduce the contents to fit the requirement.

Keywords: 2 - 6 keywords and use comma (,) between keywords. All keywords begin the first alphabet with small characters except if those words are the abbreviations or technical terms. No period (.) at the end of the keywords. Nevertheless, the keywords should accurately reflect the content of the article. The keywords will be used for indexing purposes.

1. Introduction

Single column paper must be typed with 10-pt Times New Roman with 12-pt spacing. Left and right margin are 1.25 and 1 inch, respectively. First page with RSU heading (2 inch). It is more convenient if you write over this file with your contents. The top of other pages is 1.2 inch, all bottom margin (footer) is 0.6 inch. First line of the paragraph has indented 0.5 inch. Please note that the paper size is standard A4 size (approx. 8.27 x 11.69 in).



The introduction part must compose of 1) Introduction of the stories 2) the previous reviews 3) the pain points of your stories and point out why you want to research for. You can write in a number of paragraphs but completing all requirements above. The introduction should put the focus of the manuscript into a broader context. As you compose the introduction, think of readers who are not experts in this field. Include a brief review of the key literature. If there are relevant controversies or disagreements in the field, they should be mentioned so that a non-expert reader can find out about these issues further. The introduction should conclude with a brief statement of the overall aim of the experiments.

Here is the example of the citation format. **First**, put the name of the researcher as the subject with publication year in the blanket. **Second**, you tell the stories and put in-text citation using the author-year system. Please see examples.

Wick Johnson (2008) report his finding that stock prices depend on many factors such as market situations, pandemic exposures etc. This finding are attributed by the electron flow rates measured in form of voltage changes (**Benjamin, 2010**). For 2-3 authors; all authors are to be listed, with “and” separating the last two authors, for more than three authors, list the first author followed by et al. The list of references should be arranged alphabetically by authors' names (**Songsangjan, (2020); Wiwatchrun, (2019); Kunkit, (2018)**). All publications cited in the text should be presented in a list of references following the text of the manuscript. It is worth if your citation is up to date. Please find update literature reviews, it scales up your paper's accomplishment. The manuscript should be carefully checked to ensure that the spelling of authors' names and dates are exactly the same in the text as in the reference list. Responsibility for the accuracy of bibliographic citations lies entirely with the author(s). Citation of a reference as “in press” implies that the item has been accepted for publication. Authors are responsible for the accuracy of the content of the references.

(Must read) Please realize that all in-text citations must be listed in the reference part. Vice versa, all references must be appeared in the context. The authors must not put in-text citation without references' list.

2. Objectives

The objectives of the study should be specified explicitly. It can be categorized in 1)... 2)... 3)...

- 1) The research objective must be measurable.
- 2) Begin with an action verb to describe the behavior at the appropriate level of learning.
- 3) Make sure it's a verb that can be measured.
- 4) The word “Understand” is too vague, but “complete,” “identify,” or “recognize” are specific.

3. Materials and Methods

This section should provide enough detail to allow full replication of the study by suitably skilled investigators. Protocols for new methods should be included, but well-established protocols may simply be referenced.

4. Results and Discussion

(The results and discussion may be combined into one section, or can be separated to 4.1 Results and 4.2 Discussion).

The results section should provide details of all of the experiments that are required to support the conclusions of the paper. There is no specific word limit for this section. The section may be divided into subsections, each with a concise subheading. The results section should be written in the past tense.

Tables must be cell-based without vertical lines (up to 3 tables/ 1 paper). They should be produced in a spreadsheet program such as in Microsoft Excel or in Microsoft Word. Type all text in tables using 9-pt



font on 10-pts line spacing. Type the caption above the table to the same width as the table. Don't make table to picture.

Table 1 Table caption (no period “.”)

C1	C2	C3
R1		
R2		
R3		
R4		
R5		

Tables should be numbered consecutively. Footnotes to tables should be typed below the table and should be referred to by superscript numbers. Submit separate files of tables in their original file format and not as graphic files in addition to incorporating in the main text. Tables should not duplicate results presented elsewhere in the manuscript (e.g., in graphs).

It is a must that all tables must be described in the context by implying the finding results tabulated.

For example: In the Asia region, an RCT from Lim et al (Lim et al., 2016) examined vitamin D level in 80 acne patients and 80 HCs. The result was not significantly lower of vitamin D level in the acne group (Mean (SD) = 13.1(9.8) ng/ml and 15.2(7.2) ng/ml, $p < 0.112$, respectively), see Table 1 and Table 2.

Table 2 shows that the cut pt of vitamin D deficiency in all studies was < 20 ng/ml, except in Lim et al (Lim et al., 2016) used < 12 ng/ml as vitamin D deficiency. And the cut pt of vitamin D deficiency was not given in El-Hamd et al (El-Hamd et al., 2019).

Table 2 Table caption (no period “.”)

C1	C2	C3	C4	C5	C6	C7
R1						
R2						
R3						
R4						
R5						
R6						
R7						
R8						
R9						

If figures are inserted into the main text, type figure captions below the figure. Figures should be provided in a file format and resolution suitable for reproduction, e.g., EPS, JPEG or TIFF formats, without retouching. Photographs, charts and diagrams should be referred to as “Figure(s)” and should be numbered consecutively in the order to which they are referred. Lines in the figure must be sharpened and clear texts with a suitable size. (All Figures must be clear pictures and readable texts otherwise your paper may be rejected***). The Figure must be inserted in JPEG, GIF, or PNG. Draw them using the power point application or Photoshop etc. Don't draw your Figure using text-box of MS word.

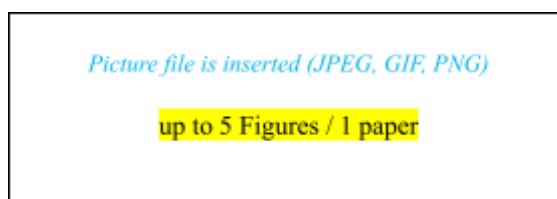


Figure 1 Figure caption (no period “.”)



Figure captions should be brief, yet provide a comprehensive explanation of the data as it appears within the text. Captions should be self-explaining and should provide sufficient information to the readers without referring to the related text in the manuscript. **It is important that the author must describe all figure in the context.** For example; **Figure 1 shows the relationship between** the rates of the explosion to the concentration of nitric oxide which results..... (Melbourne Water 2017). A discussion of the result can be placed to respond to the finding from the individual parts.

The author **must describe** the information from all figures, draw attention to important features contained within the **figure**, and may sometimes also include interpretations of the data.

Figures must be at good enough quality. Figures should be provided in a file format and resolution suitable for reproduction, e.g. JPEG, GIF, or PNG formats.

(The author **must not** draw the figure using text box of MS word.
It must be drawn as a picture in individual files of JPEG, PNG, or GIF formats

Figure 2 Figure caption

All data collected from the clinical tests **are shown in Figure 2** pts to the volunteers that..... The discussion should spell out the major conclusions of the work along with some explanation or speculation on the significance of these conclusions. How do the conclusions affect the existing assumptions and models in the field? How can future research build on these observations? What are the key experiments that must be done? The discussion should be concise and tightly argued. Conclusions firmly established by the presented data, hypotheses supported by the presented data, and speculations suggested by the presented data should be clearly identified as such.

5. Conclusion

The Conclusion section restates the major findings and suggests further research.

6. Acknowledgements

People who contributed to the work but do not fit the criteria for authorship should be listed in the Acknowledgments, along with their contributions. It is the authors' responsibility to ensure that anyone named in the acknowledgments agrees to be so named. The funding sources that have supported the work should be included in the acknowledgments.

7. References (up to 30 references)

Please follow the American Psychological Association (APA) referencing style, details of which can be found at <https://apastyle.apa.org/>. References are arranged alphabetically according to the last names of the authors and then chronologically. The first line of each reference is aligned left. Use hanging style of 0.5 inch after the first line of each reference.

The following are examples of the APA referencing style. See also Purdue OWL APA Formatting and Style Guide from <https://owl.purdue.edu/>



The examples of the APA referencing style

**** Note: “ / ” = one space bar ****

7.1 Journal Articles

Author./ (Year of publication)./Article Title./*Journal Title*,/ Volume(Issue),/Page numbers. doi: (if any)

Example:

- Leelawat, S., Leelawat, K., Narong, S., & Matangkasombut, O. (2010). The dual effects of delta 9-tetrahydrocannabinol on cholangiocarcinoma cells: Anti-invasion activity at low concentration and apoptosis induction at high concentration. *Cancer Investigation*, 28(4), 357-363.
- Polk, A., Amsden, B., Scarrrt, D., Gonzal, A., Oknamefe, O., & Goosen, M. (1994). Oral delivery in aquaculture. *Aquacultural Engineering*, 13, 311-323.
- Seals, D. R., & Tanaka, H. (2000). Manuscript peer review: A helpful checklist for students and novice referees. *Advances in Physiology Education*, 22, 52-58. doi: 10.1037/a0016372
- Srichandum, S. & Rujiranyong, T. (2010). Production scheduling for dispatching ready mixed concrete trucks using bee colony optimization. *American Journal of Engineering and Applied Sciences*, 3(1), 823-830.

7.2 Online journal articles/Internet periodicals

Author./ (Year of publication)./Article Title./*Journal Title*,/Volume(issue),/ page numbers./Retrieved mm dd, year, from the full URL of the web page. doi: (if any)

Example:

- Adams, P. J. (2000). Australian economic history. *Journal of Australian Economics*, 5(2), 117-132. Retrieved June 12, 2001, from <http://jae.org/articles.html>
- Johns, E., & Mewhort, D. (2009). Test sequence priming in recognition memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 35, 1162-1174. doi: 10.1037/a0016372

7.3 Webpages or Internet non-periodicals

Author or webpage owner / (Year of publication)./Article Title./Retrieved mm dd, year, from the full URL of the web page

Example:

- Lemire, D. (n. d.). Write good papers. Retrieved July 1, 2019, from <http://www.daniel-lemire.com/blog/rules-to-write-a-good-research-paper>
- Statistics New Zealand. (2007). *New Zealand in profile 2007*. Retrieved July 2, 2018, from <http://www.stats.govt.nz>

7.4 Proceedings in Conference or Seminar

Author./ (Year of publication)./Article Title./*Proceeding*,/Volume(issue),/ page numbers./ Conference Place, Country.

Example:

- Kitprapimpon, N., & Jarintanan, F. (2019). In vitro cytotoxic activity study of aqueous crude extracts of an anticancer Thai traditional preparation against COLO 205 cells. *Proceeding in RSU International Research Conference 2019*, pp. 25-29, Pathum Thani, Thailand. Retrieved from <https://rsucon.rsu.ac.th/files/proceedings/inter2019/IN19-231.pdf>
- Antani, S., Long, L.R., Thomas, G. R. & Lee, D. J. (2003). Anatomical shape representation in spine X-ray images. Paper presented at the 3rd IASTED International Conference on Visula, Imaging and Image Processing, Benalmadena, Spain.



7.5 Books, and book articles

Author./ (Year of publication)./ *Book Title*./ Edition (if any)./ Place of publication:/ Publisher.

Author./ (Year of publication)./ *Book Title*./ Edition (if any). In *Editors lists*/(Eds.)./ Place of publication:/ Publisher.

Author./ (Year of publication)./ Article Title./ *Book Title* (Page Numbers)./ Edition (if any)./ Place of publication:/ Publisher.

Examples:

Goodwin, C. J. (1995). *Research in psychology: Methods and design*. New York: John Wiley & Sons, Inc.

Nelsen, R. B. (2006). *An Introduction to Copulas* (2nd ed): *Springer Series in Statistics*. New York: Springer.

Molina Barreto, A. M., Ishimura, N., & Yoshizawa, Y. (2019). Value at Risk for the portfolio problem with copulas. *Empowering Science and Mathematics for Global Competitiveness* (pp. 371-376). In Rahmawati, Y., & Taylor, P. C. (Eds). London: CRC Press.

Holland, J. L. (1973). Making vocational choice. *A theory of career* (pp. 43-49). New Jersey: Prentice-Hall.

7.6 Dissertation or Thesis

Author./ (Year of publication)./ *Title of dissertation or thesis*./ Type of Thesis./ Awarding Institution.

Example:

Norasingha, A. (2009). *Expression and distribution of mucorinic receptors in hepatic composite of the cirrhotic rats*. A thesis for the degree of Master of Science in Biomedical Sciences. Rangsit University.

7.7 Unpublished/In Press Articles

Author./ (In press Year)./ Article Title./ *Journal Title*./ (in press).

Example:

Molina Barreto, A. M., & Ishimura, N. (2020). Copula-based estimation of Value at Risk for the portfolio problem. *Mathematics for Industry*. (in press).



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NOTE: No academic or executive positions are required in author names. Then no need to specify that you are a student of any program. Just put your name of the author and co-authors (if any).

*****ATTENTION***** For Chinese Students, please write your name in the similar pattern as shown in the university's registration system.

A Simple Simulation of a Fish Tank Filtration System using Random Walk

1 author

Kittiwat Tangmongkollert

Department of Physics, Faculty of Science, Ramkhamhaeng University, Bangkok, Thailand
E-mail: kittiwat.tang@gmail.com

Trading Derivatives with Money Flow Index: Case Study SET50 Index Futures S50Z17

2 authors

Nisakorn Julruksa* and Weerawat Liemmanee

College of Information and Communication Technology, Rangsit University, Pathum Thani, Thailand
*Corresponding author, E-mail: Nisakorn.j@rsu.ac.th

2 authors

Projecting the Prevalence and Distribution of Metabolic Syndrome in a Private University

Vadhana Jayathavaj^{*1} and Pranee Boonya²

¹College of Oriental Medicine, Rangsit University, Pathum Thani, Thailand

²Office of Health Welfare, Rangsit University, Pathum Thani, Thailand

*Corresponding author, E-mail: vadhana.j@rsu.ac.th

Computational Fluid Dynamics Simulation and Performance Improvement of Conventional Fluidized Bed Reactors Based on Fluidization in Rotating Fields

More than
2 authors

Supitcha Sri-indrangkura, Siwaporn Duangsri, Poomiwat Phadungbut and Pornchai Bumroongsri*

Department of Chemical Engineering, Faculty of Engineering, Mahidol University, Salaya campus,
Nakorn Pathom, Thailand

*Corresponding author, E-mail: pornchai.bum@mahidol.ac.th



Comparison of Bioactive Sulfur Containing Compounds in Fresh Garlic and Garlic Products

More than
2 authors

Laksana C

Examples of Full Paper

a Kraisintu³

¹Faculty of Pharmacy, Rangsit University, Pathum Thani, Thailand

²Sino-Thai Traditional Medicine Research Center, Faculty of Pharmacy, Rangsit University, Pathum Thani, Thailand

³Sun Herb Thai-Chinese Manufacturing Rangsit University, Rangsit University, Pathum Thani, Thailand

*Corresponding author, E-mail: laskana.c@rsu.ac.th

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11-point





Computational Fluid Dynamics Simulation and Performance Improvement of Conventional Fluidized Bed Reactors Based on Fluidization in Rotating Fields

10-point

Supitcha Sri-indrangkura, Siwaporn Duangsri, Poomiwat Phadungbut, and Pornchai Bumroongsri*

9-point

Department of Chemical Engineering, Faculty of Engineering, Mahidol University,
Mahidol University, Salaya campus, Nakorn Pathom, Thailand
*Corresponding author, E-mail: pornchai.bum@mahidol.ac.th

10-point

Abstract

9-point

In this paper, the performance of the conventional fluidized bed reactor (FB) is improved by the fluidization in centrifugal fields referred to as the rotating fluidized bed reactor (RFB). The computational fluid dynamics (CFD) model for gas-phase ethylene polymerization has been developed to study the gas-solid flow behaviors in the RFB reactor. The inlet gas velocity is an important parameter for the bed characterizations. This work uses the CFD model to study the effects of different inlet gas velocities including 25 m/s, 30 m/s, 40 m/s, 50 m/s, and 60 m/s. Two sizes of particle diameter 0.15 and 1 mm are considered. The simulation results show that the bed behavior is more stable and uniform with the increase in the inlet gas velocity. The pressure drop of the bed also increases with an increase in the inlet gas velocity. As compared with the conventional fluidized bed reactor, the rotating fluidized bed reactor gives more uniform particle distribution and less amount of particle loss.

Keywords: *Rotating fluidized bed, Centrifugal fields, Computational fluid dynamics, Gas-phase ethylene polymerization, Inlet gas velocity, Bed behavior*

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1. Introduction

Fluidized bed reactor is one of the important unit operations in the gas-phase polymerization process. The gas-phase process is popularly used for producing linear low-density polyethylene (LLDPE), and high-density polyethylene (HDPE) due to high heat and mass transfer rate (Che et al., 2015). The ethylene in the gas phase is reacted with the catalyst particles inside the bed. The polymer particles grow continuously until the desired sizes have been reached (e.g. 1,000-3,000 μm) (Ahmadzadeh et al., 2008). In the case of the conventional fluidized bed reactors (FB) based on the gravitational field, the catalyst particles are lifted up by the influence of the drag and buoyancy forces against the gravitational force. Therefore, the catalyst particles can be entrained out of the reactor when operating at too high of a gas feed rate. At a high gas feed rate, the large bubbles also occur and this phenomena causes the decrease in the efficiency of the collisional interaction between the gas and solid phases (Nakamura & Watano, 2007).

The performance of the gas-phase ethylene polymerization reactor can be improved by the fluidization in the centrifugal fields referred to as the rotating fluidized bed reactor (RFB). The monomer is fed via the multiple tangential inlet gas slots along the outer wall of the fluidization chamber causing the centrifugal field in the chamber. In the rotating fluidized bed reactor, the catalyst particles can be retained in

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the fluidization chamber although it can be operated at high monomer feed rate. Moreover, the dispersion of catalyst particles and temperature in the reactor are uniform without the formation of large bubbles so higher heat and mass transfer rates can be achieved as compared to the conventional fluidized bed reactor (Broqueville & Wilde, 2009; Wilde, 2014). However, the rotating fluidized bed reactors have to be operated in a stable bed characterization to obtain high efficiency in manufacturing processes. Kovacevic, Pantzali, and Marin (2014) presented an experimental work in a pilot-scale rotating fluidized bed reactor. The bed behaviors can be classified as unstable, semi-stable and stable bed. The unstable bed can be observed at too low gas injection velocity with an intense fall-out of particles in the freeboard of the reactor. In the semi-stable bed, the fall-out of particles is reduced. As the inlet gas velocity increases, no fall-out of particles in the freeboard region has been found. This bed behavior is called the stable bed.

Computational fluid dynamics (CFD) is a computer simulation that can be used to investigate the gas-solid flow behavior in the gas-phase ethylene polymerization reactors (Akbari et al., 2015; Che et al., 2015). The rotating fluidized bed reactors have been studied by CFD simulations.....

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1-inch
or
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How to set "line spacing"?

English guideline:

Select the paragraph right click paragraph set before/after 0 pt. and line spacing at least 11 pt.

In-text citation: use the author's **last name**-year system as examples

1 author:

Example 1: This is in agreement with results obtained later (Benjamin, 2010).

Example 2: Since Johnson (2008) has shown that.....

2-3 authors:

Example 1:experimental work in a pilot-scale rotating fluidized bed reactor (Kovacevic, Pantzali, & Marin, 2014).

Example 2: Kovacevic, Pantzali, and Marin (2014) presented an experimental work in a pilot-scale rotating fluidized bed reactor.

Note that: when paraphrasing in text, use "and" not "&".

3-5 authors:

Example 1: Oil resistance of NR is relatively poor compared to other synthetic rubbers (Kohjiya, Ikeda, & Marin, 2014). When this citation is referred more than one times, use (Kohjiya et al., 2014)

More than 5 authors:

Example 1:due to high heat and mass transfer rate (Che et al., 2015).

More than one citation at a point: use semi-colon to separate them;

Example 1:as compared to the conventional fluidized bed reactor (Broqueville, 2009; Wilde & Wilde, 2014).

NOTE:

- 1) All citation must be listed at the reference section with APA format. (See example of APA format)
- 2) All references must be used in the in-text citation. (You must not list the references without citation in the context ***Important***)

2. Objectives



-
1. To develop a CFD model in order to investigate the bed behavior of polyethylene particles in the rotating fluidized bed reactor.
 2. To study the effects of gas injection velocity on the particle distribution.
 3. To compare the performance of the rotating fluidized bed reactor with the conventional fluidized bed reactor.



Publications cited in text **must be** listed in reference section. References are arranged alphabetically by author's last name.

7. References (References must be arranged alphabetically by author's last name; *Must have one space after dot, comma, colon, semicolon****)

Example

Align text to the left. ****Do not set center alignment****

- Adams, P. J. (2000). Australian economic history. *Journal of Australian Economics*, 5(2), 117-132. Retrieved June 12, 2001, from <http://jae.org/articles.html>
- Antani, S., Long, L. R., Thomas, G. R. & Lee, D. J. (2003). Anatomical shape representation in spine X-ray images. Paper presented at the 3rd IASTED International Conference on Visula, Imaging and Image Processing, Benalmadena, Spain.
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- Holland, J. L. (1973). Making vocational choice. *A theory of career* (pp. 43-49). New Jersey: Prentice-Hall.
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- Johns, E., & Mewhort, D. (2009). Test sequence priming in recognition memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 35, 1162-1174. doi: 10.1037/a0016372
- Kirana, C., Record, I. R., McIntosh, G. H., & Jones, G. P. (2003). Screening for antitumor activity of 11 species of Indonesian zingiberaceae using human MCF-7 and HT-29 cancer cells. *Pharmaceutical Biology*, 41(4), 271-276. Retrieved from <https://doi.org/10.1076/phbi.41.4.271.15673>
- Leelawat, S., Leelawat, K., Narong, S., & Matangkasombut, O. (2010). The dual effects of delta 9-tetrahydrocannabinol on cholangiocarcinoma cells: Anti-invasion activity at low concentration and apoptosis induction at high concentration. *Cancer Investigation*, 28(4), 357-363.
- Lemire, D. (n.d.). Write good papers. Retrieved July 1, 2019, from <http://www.daniel-lemire.com/blog/rules-to-write-a-good-research-paper>
- Molina Barreto, A. M., Ishimura, N., & Yoshizawa, Y. (2019). Value at Risk for the portfolio problem with copulas. *Empowering Science and Mathematics for Global Competitiveness* (pp. 371-376). In Rahmawati, Y., & Taylor, P. C. (Eds). London: CRC Press.
- Nelsen, R. B. (2006). *An Introduction to Copulas* (2nd ed): *Springer Series in Statistics*. New York: Springer.
- Norasingha, A. (2009). *Expression and distribution of mucorinic receptors in hepatic composite of the cirrhotic rats*. A thesis for the degree of Master of Science in Biomedical Sciences. Rangsit University.
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- Srichandum, S. & Rujirayanyong, T. (2010). Production scheduling for dispatching ready mixed concrete trucks using bee colony optimization. *American Journal of Engineering and Applied Sciences*, 3(1), 823-830.