

È'èÇÀ BEC àÀÒèÁ'Òà'Ò'ì;ÒÁá¼' 5 » Ò ©Ñ°·Òè 3 (¼·È. 2549- ¼·È. 2553) à'»Ò§º»ÁÐÀÒ³ 2549 à'èÁÒ;ÒÁ'Ñ'·ÓÑ¹·Ò;èíµ; ÇÀÒÁÁÐÁÐàÇÀÒèÇÒÁÁèÇÁÁ×íµèíà»à»ç¹ÁÐÁÐàÇÀÒ 5 » Ò µÑé§áµè 1 µÐÁÒèÁ 2548 ¶Ò§ 30 ;Ñ¹ÁÒÁ¹ 2553 à'ÁÁÒÇÑµ¶» ÇÒÈÇ;ÁÁÁªÒÇàèÁÒáÁÐàÁ§§Ò¹µé¹áººçí§»ÁÐà·È áÁÐ¾Ñ²Òà·èà¹áÁÁÒ¾×é¹ºÒ¹áÁÐà·èà¹áÁÁÒ·Òè·ÐàÈÈÒÁ§Ò¹ÇÒ·ÑÁ ¾Ñ² áÁÐ ;ÒÁ¾Ñ²ÒºèèÁÒ;Á á¹ÈÒèÒ·Òèà;ÒèÁÇÇéí§ á'ÁÁÒ;ÁÍº;ÒÁ·Ò§Ò¹»ÁÐ;íº'èÇÁ§Ò¹á¹;ÁÐèÁÇÒ·ÑÁÈÁÑ; 5 ;ÁÐèÁ á'èá;è ;Á à·èà¹áÁÁÒà«¹à«ÍÁì (Sensor Technology), ;ÒÁ¾Ñ²Ò;ÁÐºÇ¹;ÒÁ·Ò§ºÒÇÀÒ¾çí§ "ÐÁÒ¹·ÁÒÁì (Microbial Bioprocess Development Technology and Engineering), áÁÐ ªÒÇÇÒ·ÁÒÁÐººáÁÐªÒÇÈÒ ÁÈ¹à·È (Systems Biology and Bioinformatics) ÁÇÁ¶Ò§§Ò¹·Ò§'èÒ¹áÁ§§Ò¹µé¹áºº;ÒÁÈÁÑ;áÁÐ§Ò¹ºÁÒ;ÒÁÇÒºÒ;ÒÁá¹'èÒ¹µèÒ§æ

;ÒÁ'Òà'Ò'ì§Ò¹çí§È¹èÇÀ BEC »Ñ¹·ºÑ¹ ÍÁÙèÀÒÁµé;ÒÁºÁÒÈÒÁ'Ñ' ;ÒÁçí§ ÁÈ. Á·áÈÈ ÈÐÇÁÁ³Á×¹ «Òè§à»ç¹¼ÙéÍÒ¹ÇÁ;Ò

{mospagebreak heading=»ÁÐÇÑµÒ·ÒèÁÒ&title=ÇÒÈÑÁ·ÑÈ¹ì
¾Ñ¹ ;Ò¹}

ÇÒÈÑÁ·ÑÈ¹ì

BEC "Ðà»ç¹ÈÙ¹ÁìÇÒ·ÑÁ¾Ñ²ÒáÁÐ¶èÒÁ·Í·à·èà¹áÁÁÒ ·Ò§'èÒ¹ÇÒÈÇ;ÁÁÁªÒÇàèÁÒáÁÐà·èà¹áÁÁÒªÒÇÀÒ¾·Òèà;ÒèÁÇÇéí µÑé¹¹Òçí§ÁÙÁÒÁÒè·Ñé§á¹'èÒ¹;ÒÁÇÒ·ÑÁáÁÐ¾Ñ²ÒÇÒÈÇ;ÁÁÁ áÁÐ;ÒÁºÁÒ;ÒÁÇÒºÒ;ÒÁ «Òè§ÈÒÁÒÁ¶íº'è¹íµèíµÇÒÁ

¾Ñ¹ ;Ò¹

·Ò;ÒÁÇÒ·ÑÁáÁÐ¾Ñ²Òà¾×é¹¾Ñ²ÒèÇÒÁÁÙèèÇÒÁÈÒÁÒÁ¶ á¹;ÒÁ¾Ñ²ÒáÁÐ»ÁÑº»ÁÐ§¼ÁÒµÁÑ³±; ;ÁÐºÇ¹;ÒÁáÁÐà·èà¹ áÈé¹Òá»ÈÙè;ÒÁ¶èÒÁ·Í·áÁÐ;ÒÁªªé§Ò¹"ÁÒ§ÈÁ×íá¹àºÒ§;ÒÁèÓ·Ñé§á¹»ÁÐà·ÈáÁÐÁÙÁÒÁÒè á'ÁÍÒÈÑÁ;ÒÁªªéÁÐºº / ÍØ» ;Á à»ç¹àè×éí§Á×ÍÈÒèÑ·á¹;ÒÁ'Òà'Ò'ì§Ò¹

{mospagebreak title=;ÒÁºÁÒÈÒÁ
"Ñ' ;ÒÁ}

;ÒÁºÁÒÈÒÁ'Ñ' ;ÒÁ;ÁÐèÁÇÒ·ÑÁ

È¹èÇÀ»·ÒºÑµÒ;ÒÁÍ ÁèÇÁ'Òà'Ò'ì§Ò¹;Ñ¹ÈÒ¹Ñ;ÈÇ¹ÍØµÈÒÈ;ÁÁÁ (IPC) È¶ÒºÑ¹¾Ñ²ÒáÁÐ½Ò;Ò;ÒÁÁÁ§§Ò¹µé¹áºº (PDTI) áÁÐººÁÒÈÒÁ§Ò¹ÇÒ·ÑÁá¹ÁÙ»áººçí§;ÁÐèÁÇÒ·ÑÁ (R&D Cluster) á'ÁÁÒºèèÁÒ;Á'Ò;È¹èÇÁ§Ò¹'Ñ§;ÁèÒÇÁÒÁèÇÁÁ×íà¾×éí'Òà'Ò'ì ¾Ñ²ÒÁÐººÇÒ·ÑÁ·ÒèàèÁáçç§"Òà»ç¹µéí§ÈÁèÒ§µÇÒÁªªéíÁÁÁ§Èí§·Ò§ (Two-way Communication) ÁÐÈÇèÒ§µÇÒÁµéí§;ÒÁ µÇÒÁÁÙèáÈÁè (Supply Push) á¹;Áä;çí§ÁÈÒÇÒ·ÁÒÁÑÁ»µÒáÁèáí×éíáÈéá;Ò ;ÒÁªªéíÁÁÁ§'Ñ§;ÁèÒÇá' é á¹ç³Ðà'ÒÁÇ;Ñ¹ µÇ àèéÁáçç§·Ò§ÇÒºÒ;ÒÁáÁÐ;ÒÁ·ÒÇÒ·ÑÁÁèÒ§µèíà¹×éí§ §Ò¹çí§È¹èÇÀ»·ÒºÑµÒ;ÒÁÍ «Òè§à»ç¹ÈèÇ¹È¹Òè§çí§ R&D Cluster "Ò áÁÐ¾Ñ²Ò·ÒèÁÒèèººÁÒ¾ÈÙ§ ;ÒÁáÈÈèºº;ÒÁÇÒºÒ;ÒÁ µÒ»ÁÒ;ÈÒ;ÒÁ¾Ñ²Òà·èà¹áÁÁÒá;èÁÒèá;¹¹ áÈéµÇÒÁªèÇÁàÈÁ×íÁ

áÁÐÁ ; ÒÁ'ÒàçéÒà.âá'áÁÁÖ"Ò;µèÒ§»ÁÐà.È ÁÇÁ.Ñé§à»ç'É'èÇÁÊ'Ñ'É'Ø'; ÒÁ¼ÁÔµ°Ñ±ÔµãÉéÁÖçÒÁÁÛéáÁÐ.Ñ;ÉÐ'èÒ'

á'Çç'Ò' àÁ×éÍ§ R&D Cluster à»ç'çÒÁç'Ô'ÁÔáÁÔéÁ.Ôè"Ð¼Ñ²'ÒÁÐ°; ÒÁ°ÁÔÉÒÁ"Ñ' ; ÒÁ.Ôèà²×éÍÁáÁ§; ÒÁ.ÓÇÔ"ÑÁ.ÔèÁÔ
áÁÐ; ÒÁ¶èÒÁ.Í' à.âá'áÁÁÖáÉéÁÔçá; ã' ; ÒÁ'Òà'Ò'; ÒÁ'³ Á". àÁÔéÁá'Á; ÒÁ»ÁÑ°âçÁÉÁéÒ§; ÒÁ°ÁÔÉÒÁáÉéá; Ò' ; ÒÁáé.ÁÑ
BEC á'Áá°è§; ÁÐèÁ; ÒÁ°ÁÔÉÒÁáÁÐ'Òà'Ò'; ÒÁÍ; à»ç' 3 ; ÁÐèÁçÍ

- ; ÁÐèÁ°ÁÔÉÒÁáÁÐ'áÁÔÁ. ÓÉ'èÒ.Ôè; Ò; Ò'Ñ°.ÔÉ.Ò§ §Ò'ÇÔ"ÑÁ §Ò'¹ÔÁ; ÒÁÇÔ°Ò; ÒÁ áÁÐ; ÒÁ¶èÒÁ.Í' à.âá'áÁÁÖ ááé; Áá; ; Ò
and Budgeting System: PPBS) à»ç' ; Áá; á' ; ÒÁ; Ò; Ò'Ñ°.ÔÉ.Ò§ á'ÁÁÉÒÇÔ.ÁÔÁÑÁ"Ð ¼Ô"ÔÁ³Ó Input-Output ÉèÇ'; ÁÐèÁ R&D Clu
ÁÇÁ¶Ò§; ÒÁ; ÒÉ' á§Ò'á'×Í'ÉèÇ'á¼ÔèÁçÍ§¼'Ñ; §Ò' .Ñé§'ÔéµéÍ§à»ç' á»µÔÁ; @ ÁÐà°ÔÁ°çÍ§ÁÉÒÇÔ.ÁÔÁÑÁ

- ÉéÍ§»Ô°ÑµÔ; ÒÁÇÔ"ÑÁ (Research Lab) áÁÐ; ÁÐèÁÇÔ"ÑÁ (R&D Cluster) .ÔèÁÔ; ÁÐèÁÇÔ"ÑÁ.ÓÉ'èÒ.ÔèÇÔ"ÑÁ ÉÁéÒ§ §Ò
; ÒÁ¼Ñ²'Òà.âá'áÁÁÖá; èÁÔçá; ã' ÁÇÁ.Ñé§à»ç'É'èÇÁÊ'Ñ'É'Ø'; ÒÁ¼ÁÔµ°Ñ±ÔµãÉéÁÖçÒÁÁÛéáÁÐ.Ñ;ÉÐ'èÒ'; ÒÁÇÔ"ÑÁç
Cluster) .ÔèÁÔ; ÁÐèÁÇÔ"ÑÁáÁÐÇÔ°Ò; ÒÁá»ç' á; ¹ Í§ç; ÁÐ; ¹°çÍ; ÁÐèÁÇÔ"ÑÁ»ÁÐ; ¹°éÇÁ ÉÑÇÉ'èÒ; ÁÐèÁÇÔ"ÑÁ ¹Ñ; ÇÔ"ÑÁÍ
ÁÐ'Ñ°»ÁÔ--Òà; ¹Ñ; ÉÒ; ÉÒÁÐ'Ñ°»ÁÔ--Òà.

- É'èÇÁ§Ò'É'Ñ'É'Ø' (Supporting Groups) .ÓÉ'èÒ.Ôèé'Ñ'É'Ø'á'á'á×éÍ§§Ò'.ØÁ; ÒÁçÍ§âçÁ; ÒÁáÁÐ; ÒÁ °ÁÔÉÒÁ§Ò'.ÑèÇá»
»ÁÐÉÒ'ÉÑÁ¼Ñ'.ÍÁÐÉÇèÒ§ÁÉÒÇÔ.ÁÔÁÑÁ; Ò°ÁÔèÍµÉÔÉ; ÁÁÁ (University-Industrial Liaison Office)

ÁÛ»á°; ÒÁ°ÁÔÉÒÁ"Ñ' ; ÒÁ; ÁÐèÁÇÔ"ÑÁá° R&D Cluster á'ÁÉéÍ§»Ô°ÑµÔ; ÒÁÇÔ"ÑÁà»ç'É'Û'Á; ÁÔ§çÍ§; ÒÁ.ÓÇÔ"ÑÁáÁÐÉ'Í
.ÓáÉé R&D Cluster ÉÓÁÔÁ¶áé.ÁÑ¼ÁÔ; ÁáÉéá; Ò' »ÁÐáá¹; ÉÛ§ÉØ'á'; ÒÁ¼ÁÔµ°Ñ±Ôµ ¹Ñ; ÇÔ"ÑÁ ; ÒÁ.Ó ÇÔ"ÑÁ ; ÒÁ°ÁÔ; Ò
á'ÁÁÔÉÑÇÉ'èÒÉéÍ§»Ô°ÑµÔ; ÒÁáÁÐ'Ñ; ÇÔ"ÑÁÍÒÇØáÉà»ç'¼ÔèáÁÔéÁ§Ñ; ÇÔ"ÑÁ á'ç³Ðà'ÔÁÇ; Ò' ; çáí×éÍÁÉéá; Ò' ; ÒÁ.ÓÇÔ
çÔé'ÍÁÛè; Ò'á'.ÁíáÁÐÉÑÇçéÍÇÔ"ÑÁ áÁÐÁÇÁ.Ñé§à»ç'; ÒÁÁÐ'Á.ÁÑ¼ÁÔ; Á ¼ÛéÁÛé áÁÐçÒÁ à°ÔèÁÇÔ°Ò- (Expertise) "Ò; ÉÁ
«Ôè§; çéÍÁÉéá; Ò' çÒÁáçéÁáçççÍ§ÁÐ°ÇÔ"ÑÁ

; ÒÁ°ÁÔÉÒÁ; ÒÁá§Ò'á»ç'Í'Ó; Ò'Ñ'ÑÁÉ'Ôè§.Ôè.ÓáÉé R&D Cluster ÁÔçÒÁÁ×'ÉÁÐè'á'; ÒÁ°ÁÔÉÒÁáÁÐ'Ñ'ÉÒ§°»ÁÐÁÒ³á'
¹Ñ; ÇÔ"ÑÁáÁÐ; ÁÐèÁÇÔ"ÑÁµéÍ§.ÓçéÍáÉ'ÍáçÁ§; ÒÁ à¼×éÍçÍÁÑ°; ÒÁÉ'Ñ'É'Ø' ; Ò; áÉÁè§.Ø'µèÒ§æ áÁÐà»ç'ÁÑ; É³¼Ôè§µ¹áÍ§
ÁÔÉ'èÇÁ§Ò'É'Ñ'É'Ø'.ÓÉ'èÒ.ÔèáÉé°ÁÔ; ÒÁ'èÒ'¹Ñ-°ÓáÁÐ; ÒÁ°Ò; "èÒÁ.Ñé§'Ôéá»ç'á»µÔÁçÒÁÁÑ°¼Ô'á'çÍ§ÉÑÇÉ'èÒáç
; ÒÁáé.ÁÑ¼ÁÔ; ÁáÁÐ§°»ÁÐÁÒ³µèÒ§æ ÉÓÁÔÁ¶áéÁéÇÁ; Ò'ÁÐÉÇèÒ§âçÁ; ÒÁÇÔ"ÑÁ áÁÐÁÐÉÇèÒ§; ÁÐèÁÇÔ"ÑÁá'é.Ñé§
°ÁÔÉÒÁ§°»ÁÐÁÒ³Ñ§; ÁèÒÇ.ÓáÉé R&D Cluster ÁÔçÒÁÁ×'ÉÁÐè'á'; ÒÁ°ÁÔÉÒÁ§°»ÁÐÁÒ³ÇÔ"ÑÁ áÁÐÉÁéÒ§çÒÁáçéÁá
Í§ç; ÁÁÔ; ; ÇèÒ; ÒÁÍÁÛéÁÍ'á°¼ÔÐâçÁ; ÒÁÇÔ"ÑÁÁéÍÁæ ÉÁ×Íáè¼ÔÐ; ÁÐèÁÇÔ"ÑÁà.èÒ'Ñé'

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É'Ñ'É'Ø'}

§°»ÁÐÁÒ³É'Ñ'É'Ø'

É'èÇÁ BEC á'éÁÑ°; ÒÁÉ'Ñ'É'Ø'; ÒÁ'Òà'Ò'§Ò'Ò; Ò; áÉÁè§.Ø'µèÒ§æ á'éá; è Ò'Á; ¼Ñ'.ØÇÔÉÇ; ÁÁÁáÁÐà.âá'áÁÁÖ°ÔÇÀÒ¼
ÁÔÁÑ°"Ò; ÒÁÁÑ°"éÒ§ÇÔ"ÑÁ §Ò'¹ÔÁ; ÒÁÇÔ°Ò; ÒÁ.Ñé§"Ò; É'èÇÁ§Ò'ÁÔçÁÑ°áÁÐá; ã'

ÈÁÒÀà'è¹;ÒÃ»ÃÐÃØ;µiãªèàµÃ×èí§Á×í'èÒ¹ªÒÇÈÒÃÈ¹à·ÈáÃÐà·µ¹Òµ'èÒ¹;ÒÃÈÃèÒ§áªª·ÓÁí§çí§à«ÁÀì ÃÇÁ¶Ö§;ÒÃ ÇÒàµÃÒ
ÈÑ§àµÃÒÐÈiáÃÐ¼ÁÒµ;Ã'äçÃÑ¹·ÒèÃÒ»ÃÐàÃªiã¹àªÒ§;ÒÃá¾·Áiã¹ÈÒè§ÁÒªÒÇÒµà«ÁÀià'ÒèÃÇ àªè¹ ÁÒÈµi à¾×èìà»ç¹çéíÁ
ã¹ÈÑÇÃÑ¹ÈÓ»ÐÈÃÑ§à¾×èìãªè»ÃÑº»ÃØ§µØ³ÃÑ;É³Ðçí§á»é§ãÈèµÃ§µÒÃµÇÒÁµéí§;ÒÃçí§µÃÒ' áÃÐ;ÒÃãªèªªª·ÓÁí§;Ò'jÃ
µÑÇíÁèÒ§§Ò¹ÇÒ'ÑÁ àªè¹ jÒÃÇÒàµÃÒÐÈiáÃÐÈÃèÒ§áªª·ÓÁí§àÁµÒàªÒ«ÒÃçí§ÁÒ»Ò'ã¹ÃÒÈµi à¾×èì »ÃÑº»ÃØ§µÇÒÁÈÒ
jÒÃÇÒàµÃÒÐÈiáµÃ§ÈÃèÒ§çí§ÇÒ¶Ò;ÒÃÈÑ§àµÃÒÐÈi;Ã'¹ÒÇµÃÓíÒ;ã¹àª×èìÁÒÀÒàÃÒÁ Plasmodium falciparum à¾×èì;ÓÈ¹

{mospagebreak title=ªÒµÃÒ;Ã}

ªÒµÃÒ;Ãçí§È¹èÇÃ Ì

jÒÃªÒÈÒÃ'Ñ¹;ÒÃçí§È¹èÇÃÌ "ÐíÁÙèÀÒÃµé;ÒÃ'ÙáÃçí§µ³Ðí¹Ø;ÃÃÁ;ÒÃªÒÈÒÃÈ¹èÇÃÌ áÃÐ;ÒÃªÒÈÒÃá·Á ·ÒÁ¼Ùèªªª·
ã¹ÃÒªÒµÃÒ;Ã'Ò;È¹èÇÃ§Ò¹·ÒèÃÒµÇÒÁÃèÇÁÁ×í;Ñ¹ÁÒÃèÇÁ;Ñ¹»-ÒºÑµÒ§Ò¹ ·Ñé§ Á". áÃÐ Èª.

{mospagebreak title=¼Á;ÒÃ'Òà¹Ò¹
§Ò¹ 1}

¼Á;ÒÃ'Òà¹Ò¹§Ò¹

1. à·µã¹áÃÃÒ·Òè¹Òã»ãªè»ÃÐàÃªiã¹áÉÇáÃÐ¾ÃéíÁ¶èÒÃ·Í'à·µã¹áÃÃÒ

jÃØèÃÇÒ'ÑÁà·µã¹áÃÃÒÈÒÈÃèÒÃ

• à·µã¹áÃÃÒ;ÒÃ¼ÁÒµÈÒÈÃèÒÃÈã»ÃÙÃÒ¹èÒ : à·µã¹áÃÃÒ¹Òèà»ç¹»ÃÐàÃªiã¹ÁèÒ§ÁÒ;µèííØµÈÒÈ;ÃÃÁ;ÒÃ¼ÁÒµÈÒÈ
ã¹éÁÒ;ÒÃ¾Ñ²¹ÒÃÐªª·ÒÃàÃÒéÃ§ÈÒÈÃèÒÃÈã»ÃÙÃÒ¹èÒ«Òè§áÃÒèÃ'Ò;ÒÃãªè¹éÓ·Òè§'Ò;ãÃ§§Ò¹á»é§ÃÑ¹ÈÓ»ÐÈÃÑ§ ã¹Ã
«Òè§ÈÒÁÒ¶¼ÁÒµ¼ÁÒµÃÑ³±iãÈé§·ÒèÃÒã»ÃµÒ¹ÃéíÃÃÐ 55 µèÒµÇÒÁª×é¹ ÁéíÃÃÐ 7 áÃÐã¹;ÒÃµÓ¹Ç³;ÒÃÃ§·Ø¹ÈÓÈÃÑº;Ç
»ÃÐÃÒ³à§Ò¹Ã§·Ø¹ \$6,000 – \$7,000 µéíµÑ¹ »Ñ¹·ØºÑ¹ã¹éÁÒ;ÒÃ¶èÒÃ·Í'à·µã¹áÃÃÒ¹ÒèáÈéáíª¹·Òè¼ÁÒµÈÒÈÃèÒÃÈã»Ã

jÃØèÃÇÒ'ÑÁ;ÒÃ¾Ñ²¹Ò;ÃÐºÇ¹;ÒÃ·Ò§ªÒÇÀÒ¾çí§'ØÃÒ¹·ÃÒÃiáÃÐãÃ§§Ò¹µé¹ªªª·ÒÃÈÃÑ; j

• à·â¹âÀÀÏ;ÒÀ¼ÀÔµÀÔÊµιϕ¹Á»Ñš¹ÀÐ'ÑºÍØµÊÒË;ÁÁÁ : È¹èÇÀÏ ÀÔËÒÀ¾Ñ¹, Ø¹ÀÔÊµι·ÔèÀÔπØ³ËÀºÑµÔ'Ô·ÔèπÑ¹·ÑèŠ¹Ôèä'éÀÏ;ÒÀÀÑº"èòŠ¼ÀÔµÀÔÊµιáËÈ;ÑºÈ¹èÇÀŠÒ¹·ÔèµéíŠ;ÒÀä'éä¹»ÀÔÀÒ³ÀÒ;æ ÍÏ; 'éÇÀ à¾×éí;ÒÀ·'ÁÍŠµÀÒ'áÀÐ/ È¹

• à·â¹âÀÀÏ;ÒÀ¼ÀÔµ Bacillus subtilis : È¹èÇÀÏ ÈÒÀÒÀ¶¼ÀÔµ B. subtilis ä¹ ¶ÑŠ»-Ô;Ä³ιϕ¹Ò' 150 áÀÐ 1,500 ÀÔµÄ áÀË

• ;ÒÀÇÀÒÀϕ¹Ò;ÒÀ¼ÀÔµ : ;ÒÀ¾Ñ²¹Ò;ÄÐºÇ¹;ÒÀËÄÑ;áººÍÒËÒÀáϕÇŠËÒËÄÑº;ÒÀ¼ÀÔµËÒÀ Umami ä¹ÀÐ'ÑºáÀŠ ŠÒ¹µ à»ç¹ËÒÀ·Ôèä'é"Ò;ÒÀËÄÑ;¶ÑèÇàËÁ×Íšá'Áäºé"ØÀÒ¹·ÀÒÀì á'ÁÀÒ;Ä'ÍÐÀÒá¹;ÁÙµÒáÀ· (Glutamte) à»ç¹ËÒÀ»ÄÐ;Íº·ÔèËÒπÑ àº×éíŠµé¹ Èº. ä'éÀèÇÀ;ÑººÀÒÈÑ·á;¹¹³¼Ñ²¹Ò;ÄÐºÇ¹;ÒÀ¼ÀÔµ ÈÒ;ËÒ;ÒÀËÄÑ;¶ÑèÇàËÁ×Íšá'Áäºé"ØÀÒ¹·ÀÒÀì Bacillus subtilis "ÒŠáËÈ·ÒŠË¹èÇÀ BEC ¹ÒÀÒ·'ÁÍŠϕÀÒÀϕ¹Ò;ÒÀ¼ÀÔµµÑÇÍÁèÒŠá¹ÀÐ'ÑºáÀŠ ŠÒ¹µé¹áºº ä'Á·Ò;ÒÀ·'ÁÍŠ¼ÀÔµ·ÑèŠ;ÄÐºÇ¹;ÒÀ¼ÀÔµ;ÒÀËÄÑ;ä¹;ÄÐºÇ¹;ÒÀ¼ÀÔµá'ÁÍÒËÒÀáËËÇ ¾ºÇèÒÀÒ;ÁÒè¹'ÒáÀÐÀÒ glutamate ÍÁÙèä¹»ÀÔÀÒ³·ÔèËÙŠµÒÀ·ÔèµéíŠ; ä¹ËÈÇ¹;ÄÐºÇ¹;ÒÀËÄÑ;áººÍÒËÒÀáϕÇŠá¹¶ÑŠËÄØ¹ (rotating drum bioreactor) «ÒèŠà»ç¹ÇÒ'Ò;ÒÀËÄÑ;·ÔèÀÇÁϕéí'Ò ϕÍŠ;ÒÀËÄÑ;áººáϕÇŠá'ÁµÀŠáµèä'éà¾×éíÀÐº;ÒÀÄÐºÒÀÍÒ;ÒË·Ôè'Ò ä'é¼ÀÔµÄÑ³±;·ÔèÀÔπØ³ÀÒ¾áÀÐ»ÀÔÀÒ³ glutamate È¹ϕ³Ð·ÔèÄÑŠπŠπØ³ÀÒ¾ϕÍŠ¼ÀÔµÄÑ³±;áËËÍÁÙèä¹ÀÐ'Ñº·Ôè¾ºÒŠ¾¼á" áÀÐËÒÀÒÀ¶¼à»ç¹ϕéíÁÙÀá¹;ÒÀ¼ÀÔµáºÒŠÍØµËÒË;ÁÄ

;ÁÐèÁÇÒ'ÑÀ·â¹âÀÀÏà«¹à«ÍÁì

• à·â¹Ôπ Screen-Printed Electrode ÈÒËÄÑºÇÒàπÀÒÐË»ÀÔÀÒ³¹ÈÓµÒÀÄ¹áÀ×Í' : ä'é·Ò;ÒÀËËÒ;ËÒ¾Ñ²¹Ò;ÒÀµÄÒŠ áÍ'á reproducibility ä'èä¹»ÀÔÀÒ³ÀÒ; «ÒèŠÍÁÙèÄËËÇèÒŠ;ÒÀ¾Ñ²¹ÒËËÈèÒŠàπ×éíŠµé¹áºº àπ×éíŠÇÑ'¹ÈÓµÒÀ;ÁÙµàËË·Ôè'Ð ¼ÀÔ

;ÁÐèÁÇÒ'ÑÀ·â¹âÀÀÏáÀÐÇÒËÇ;ÄÄÁÍÒËÒÀ

• ;ÒÀ¾Ñ²¹Ò;ÒÀËèÒàº×éí'èÇÀπÇÒÀÄËéí¹á¹;ÄÐºÇ¹;ÒÀ¼ÀÔµÍÒËÒÀ : ä'éÁÒ;ÒÀËËÒ;ËÒ;ÄÐºÇ¹;ÒÀËèÒàº×éíÒËÒÀá¹ ÀÒº value ϕÍŠ¼ÀÔµÄÑ³±;ÍÒËÒÀá¹Ò'µèÒŠæ à¾×éíà»ç¹µèÒÀÒµÄÒ¹áÀÐäºéä¹;ÒÀ¾Ñ²¹Òà»Ä;ÁÄËÒËÄÑºáºº ;ÑºËÄËèÒàº×éí·Ôè ä'Áà©¾ÒÐ¾ÀÒËµÒ; «ÒèŠ'ÐèÇÀÄ'áÇÀÒáÀÐµèÒäºé"èÒÀá¹;ÒÀ¾Ñ²¹Ò ¼ÀÔµÄÑ³±;ÍÒËÒÀáËËÈæ ÁŠá'éíÁèÒŠÀÒ;»

;ÁÐèÁÇÒ'ÑÀºÒÇÇÒ·ÀÒÄÐººáÀÐºÒÇËÒËË¹à·È

• ;ÒÀ¾Ñ²¹Ò¼ÀÔµÄÑ³±; : ;ÒÀËËÈèÒŠ«Í¾áÇÁíáºº"ÒÁÍšáº×éíÀÔÊµι áÀÐáºº"ÒÁÍšáº×éíÇÑ³áÀπ'èÇÀà·â¹Ôπ'èò¹ºÒÇÇÒ·Á ä'é¾Ñ²¹Òáºº"ÒÁÍšϕÍŠÀÔÊµιá¹ÀÐ'Ñº·Òá¹ÁϕÒé¹áº×éíáºº"ÒÁÍšáÀÐ·Ò¹ÒÀ¼ÀÔµÍÒËÒÀËËÈÈ¹á»ÁµèÒŠæ µéí ;ÒÀà"ÀÒ·àµÒºáµ à'ÁËÒÀÒÀ¶ËËÈèÒŠàπ×éíçèÒÀáÀµÒáº"ÀÒ«ÒÀ·ÔèÀÔπÇÒÀ"Òà¾ÒÐµéíÁÔÊµιá'èËÒàÁÇ" "Ò;ϕéíÁÙÀµèÒŠæ 'éÒ"Òá¹Á áÀÐäºé ÇÒàπÀÒÐË»ÀÔÀÒ·ÒÀºáπÀŠËÈèÒŠϕÍŠàπ×éíçèÒÀ;ÒÀËËÑšàπÀÒÐË;ÁÒ»Ò'áÀÐÇÒàπÀÒÐË;µèÒ;ÄÑ;«íϕÍŠ»-Ò;ÒÀÒÀÒºÒÇ ;ÒÀ¼ÀÔµÀÒ»Ò'á¹áº×éíÁÒËÒÀ¾Ñ¹, Ø¹äËÈè áÀÐä'é¾Ñ²¹Òáºº"ÒÁÍšáº×éíÇÑ³áÀπ"Ò;ϕéíÁÙÀ"Òá¹Á à¾×éíáººéËÒà»èÒËÒÀáËËÈ ϕÍŠàπ×éíçèÒÀ;ÒÀËËÈèÒŠËÒ;Ä'áÇÁÑ¹áÀÐ;Ä'¹ÒÇπÁÒÍÒπ«ÒèŠ"Òà»ç¹µéí;ÒÀ'ÒÁŠºÒÇÒµϕÍŠà«ÁÀì à¹×éí"Ò;ÒÀÇÒ'ËÒÀá»ϕ «ÒèŠà·â¹ÔπáÀÐ«Í¾áÇÁì·ÒŠºÒÇËÒËËÈ¹à·È·Ôè¾Ñ²¹ÒϕÒé¹"ÐËÒÀÒÀ¶¼à»ç¹ virtual lab á'Á;ÒÀáºé;ÒÀ·'ÁÍŠ"ÒÁÍŠº¹;ÍÁ¾ÒÇµµ·'ÁÍšà»ÀÒèÁ¹á»ÁŠϕÍŠàπ×éíçèÒÀáÀµÒáº"ÀÒ«ÒÀá¹ÀÐ'ÑºϕÍŠÀÒ¹ à¾×éíÒà»ËÙè;ÒÀÍÍ;áºº»ÄÑº»ÀØŠπØ³ËÀºÑµÒϕÍŠà«ÁÀì·Ôè»

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§Ò¹ 2}

2. §Ò¹ºÃÒ;ÒÃ·Ò§ÇÒªÒ;ÒÃ

Ë¹èÇÃĪ ä´é¶èÒÃ·Í´à·ªâ¹âÃÃÕ·Õèä´é¾Ñ²¹ÒçÖé¹áÃÐãËéºÃÒ;ÒÃ·Ò§à·ª¹ÒªµèÍÀÒªÍØµËÒË;ÃÃÁÍÀèÒ§µèÍà¹xèÍ§ á´ÁÃÕ»ÃÐà
;ÒÃãËéªÓ»ÃÖ;ÉÒ °ÃÖËÒÃ »ÃÐàÁÒ¹ªªÃ§;ÒÃ ;ÒÃ·ÉÍº·ÁÍ§ ãËéàªèÒÍØ»;Ã³;íáÃÐãÃ§§Ò¹µé¹áºº ;ÒÃÇÒàªÃÒÐË;Ò§àªÁÕ Ë
â´ÁÃÕµÑÇÍÀèÒ§;ÒÃãËéºÃÒ;ÒÃ ´Ñ§¹Óé

- ;ÒÃ¼ÃÒµ pressed yeast ãËé;ÑººÃÖËÑ· Bioman
- ;ÒÃãËéºÃÒ;ÒÃãÃ§§Ò¹µé¹áºº´éÒ¹;ÒÃ·ÁÍ§¼ÃÒµ·ØÃÒ¹·ÃÖÃ; Bacillus subtilis à¾xèÍãªèà»ç¹ ãªÃ§;ÒÃ¹ÓèÍ§à¾xèÍ;ÒÃ·ÁÍ§µ
- ;ÒÃãËéºÃÒ;ÒÃãÃ§§Ò¹µé¹áºº;ÒÃËÃÑ;·ÁÍ§¼ÃÒµà¾xèÍãªèººÑ´¹éÓàËÖÃã¹¹Ò;Øé§ãËé;ÑººÃÖËÑ·µèÒ§æ

{mospagebreak title=¼Å;ÒÃ´Óà¹Ò¹
§Ò¹ 3}

3. ;ÒÃ¶èÒÃ·Í´à·ªâ¹âÃÃÕáÃÐà¼Ãá¾ÃèÍ§ª;ÇÒÁÃÙé´Ò;§Ò¹ÇÒ·ÑÃ

Ë¹èÇÃĪ ä´é·Ñ´»ÃÐªØÁËÑÁÁ¹Ò áÃÐ½Ö;ÍºÃÃàªÒ§»´ÒºÑµÒ;ÒÃ ã¹ËÑÇçéÍµèÒ§æ

- Mass Cultivation of Spirulina
- Regional mini-symposium on bio sensor and chemical sensor technology
- Bioinformatics as a Tool for Gene Manipulation
- Metabolic Engineering and Functional Genomics
- Advanced Fermentation Technology
- Practical approach to ferment ation technology workshop

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§Ò¹ 4}

7. ;ÒÃàÈ¹¼Á§Ò¹áÁÐÈÒè§µÒ³¼ÒÁ³¼ì

¼ÒÃàÈ¹¼Á§Ò¹á¹àèÇ§»Õ§º»ÁÐÁÒ³ 2536-2550 È¹èÇÁÏ ÁÒ¼Á§Ò¹µÒ³¼ÒÁ³¼ìá¹ÇÒÃÈÒÃ¹Ò¹ÒªÒµÒ 76 àÃxèí§ ÇÒÃÈÒÃÁÐ´Ñ àÃxèí§ á´Áà»ç¹;ÒÃàÈ¹¼Á§Ò¹á¹ÁÐ´ÑÒ¹ÒªÒµÒ 201 àÃxèí§ áÁÐÁÐ´ÑªÒµÒ 319 àÃxèí§

ÇÒÃÈÒÃ·Ò§ÇÒªÒ;ÒÃ

- Cohen, Z.; Ruengichatchawalya, M.; Siangdung, W.; Tanticharoen, M. “Production and partial purification of g - linolenic acid and some pigments from *Spirulina platensis* ” *Journal of Applied Phycology* 1993, 5:109-115
- Tanticharoen, M.; Bunnag, B.; Vonshak, A. “Cultivation of *Spirulina* using Secondary treated starch waste water” *Journal of Australasian Biotechnology* 1993, 3:223-226.
- Cohen, Z.; Ruengichatchawalya, M.; Siangdung, W.; Tanticharoen, M.; Heimer, Y. M. “Herbicide-resistant Lines of microalgae: growth and fatty acid composition” *Journal of Phytochemistry* 1993, 34 (4):973-978.
- Chanawongse, L.; Lee, Y.K.; Bunnag, B.; Tanticharoen, M. “Productivity of the cyanobacterium *Spirulina platensis* in cultures using sunlight” *Journal of Bioresources Technology* 1994, 48:143-148.
- Tanticharoen, M.; Ruengichatchawalya, M.; Bunnag, B.; Vonktaveesuk, P.; Vonshak, A. ; Cohen, Z. “Optimization of g - linolenic acid (GLA) production in *Spirulina platensis* ” *Journal of Applied Phycology* 1994, 6:295-300.
- Vonshak, A.; Chanawongse, L.; Bunnag, B.; Tanticharoen, M. “Physiological characterization of *Spirulina platensis* isolates: Response to light and salinity” *Journal of Plant Physiology* 1995, 14:161-166.
- Vonshak, A.; Kancharaksa, N.; Bunnag, B.; Tanticharoen, M. “Role of light and photosynthesis on the acclimation process of the cyanobacterium *Spirulina platensis* to salinity stress” *Journal of Applied Phycology* 1996, 8:119-124.
- Somasundrum, M.; Kirtikara, K.; Tanticharoen, M. “Amperometric determination of hydrogen peroxide by direct and catalytic reduction at a copper electrode” *Journal of Analytica Chimica Acta* 1996, 319:59-70.
- Vonshak, A.; Chanawongse, L.; Bunnag, B.; Ta nticharoen, M. “Light acclimation and photoinhibition in three *Spirulina platensis* (cyanobacteria) isolates” *Journal of Applied Phycology* 1996, 8:35-40.
- Somasundrum, M.; Tanticharoen, M.; Kirtikara, K. “H 2 O 2 from an oxidase enzyme can be detected cathodically using metal-dispersed conducting polymer film” *Journal of Electroanalytical Chemistry* 1996, 407:247-251.
- Somasundrum, M.; Tongta, A.; Tanticharoen, M.; Kirtikara, K. “A kinetic model for the reduction of enzyme - generated H 2 O 2 at a metal-dispersed conducting polymer film” *Journal of Electroanalytical Chemistry* 1997 , 440:259-264.
- Kiattipoomchai, M.; Somasundrum, M.; Tanticharoen, M.; Kirtikara, K. “Measurement of sulfite at oxide-coated

copper electrodes” Journal of Analytica Chimica Acta 1998 , 123:2017-2019.

- Nomsawai, P.; Tanticharoen, M.; Cheevadhanarak, S. “Light regulation of phycobilisome structure and gene expression in *Spirulina platensis* C1 (*Arthrospira* sp. PCC9438)” Journal of Plant Cell Physiol o gy 1999, 40(12):1194-1202.
- Surareungchai, W.; Worasing, S.; Sritongkum, P.; Tanticharoen, M. “Dual electrode signal-subtracted bio sensor for simultaneous flow injection determination of sucrose and glucose.” Journal of Analytica Chimica Acta 1999 , 380:7-15.
- Samarntarn, W.; Cheevadhanarak, S.; Tanticharoen, M. “Production of alkaline protease by genetic ally engineered *Aspergillus oryzae* U1521. ” Journal of General Applied Microbiology and Biotechnology 1999, 45:99-103 .
- Arjsriwat, S.; Tanticharoen, M.; Kirtikara, K.; Aoki, K.; Somasundrum, M. “Metal – dispersed Conducting polymer – Coated Electrode used for Oxidase – based Bio sensor .” Journal of Electrochemistry Communication 2000, 2:441- 444.
- Laoteng, K.; Monnontara, R.; Tanticharoen, M.; Cheevadhanarak, S. “Delta 6 desaturase of *Mucor rouxii* with high samilarity to Plant delta 6–desaturase and its Heterologous Expression in *Saccharomyces cerevisiae* .” Journal of Biochemical and Biophysical Research Communications 2000 , 279:17-22.
- Passorn, S.; Laoteng, K.; Rachadawong, S.; Tanticharoen, M.; Cheevadhanarak, S. “Heterologous Expression of *Mucor rouxii* D 12 Gene in *Saccharomyces cerevisiae* .” Biochemical and Biophysical Research Communications 1999 , 263:47-51.
- Deshniium, P.; Paitoonrangsarid, K.; Suphatrakul, A.; Meesapyodsuk, D.; Tanticharoen, M.; Cheevadhanarak, S. “Temperature-independent and dependent expression of desaturase genes in filamentous cyanobacterium *Spirulina platensis* C1 (*Arthrospira* sp. PCC9438)” Journal of FEMS Microbiology Letter 2000, 184:207-213.
- Surareungchai, W.; Kasiwat, D. “Electroanalysis of tert-Butylhydroquinone in Edible Oil at a Nafion – Coated Probe.” Journal of Electroanalysis 2000, 12(14):1124-1129.
- Laoteng, K.; Anjard, C.; Rachadawong, S.; Tanticharoen, M.; Maresca, B. “ *Mucor rouxii* D 9 Desaturase Gene is Transcriptionally Regulated during Cell Growth and by Low Temperature.” Molecular Cell Biology Research Communications 1999 , 1:36-43.
- Jaturapat, A.; Isaka, M.; Hywel-Jones, NL.; Lertwerawat, Y.; Kamchonwongpaisan, S.; Kirtikara, K.; Tanticharoen, M.; Thebtaranonth, Y. “Biosanthracenes from the Insect Pathogenic Fungus *Cordyceps pseudomilitaris* BCC 1620. I. Taxonomy, Fermentation, Isolation and Antimalarial Activity.” Journal of Antibiotics 2001 , 54(1):29-35.
- Isaka, M.; Jaturapat, A.; Kladwang, W.; Panya, J.; Lertwerawat, Y.; Tanticharoen, M.; Thebtaranonth, Y. “Antiplasmodial compounds from wood-decayed fungus *Xylaria* sp. BCC 1067” Journal of Planta Medical 2000, 66:473-475.
- Meesapyodsuk, D.; Reed, D.W.; Cheevadhanarak, S.; Deshniium, P.; Covello, P.S. “Probing the mechanism of a cyanobacterial D 9 Fatty acid desaturase from *Spirulina platensis* C1 (*Arthrospira* sp. PCC9438)” Journal of Comparative Biochemistry and Physiology Part B 2001, 129:831 -835.
- Thammarongtham, C.; Turner, G.; Moir, A.J.; Tanticharoen, M.; Cheevadhanarak, S. “A new class of glutaminase from *Aspergillus oryzae* .” Journal of Molecular Microbiology and Biotechnology 2001, 3(4) (Oct):611-617.
- Surareungchai, W.; Deepunya, W.; Tassakorn, P. “Quadruple-pulsed amperometric detection for simultaneous flow injection determination of glucose and fructose” Journal of Analytica Chimica Acta 2001 , 448:215-220.
- Chairasert, P.; Bhumiratana, S.; Tanticharoen, M. “Mesophilic and Thermophilic Anaerobic Digestion of Pineapple Cannery Wastes” Thammasat International Journal of Science and Technology 2001 , 6 (2):1-9.
- Ruengitchatchawalya, M.; Chirasuwan, N.; Chaiklahan, R.; Bunnag, B.; Deshniium, P.; Tanticharoen, M. “Photosynthetic characteristics of a mutant of *Spirulina plantensis* ” Journal of Applied Phycology 2002 , 14:71-76.
- Posayapisit, N.; Pumputsa, K.; Mekvichitsaeng, P.; Techkarnjanaruk, S. “Phylo genetic analysis of Baculovirus chitinase sequence” Journal of Chitin Enzymology 2001, 343-350.

- Suriyawattanakul, L.; Surareungchai, W.; Sritongkum, P.; Tanticharoen, M.; Kirtikara, K. “The use of co-immobilization of *Trichosporon cutaneum* and *Bacillus licheniformis* for a BOD sensor ” *Journal of Applied Microbiology and Biotechnology* 2002, 59:40-44.
- Na Nakon P.; Suphantharika M.; Udomsopagit S.; and Surareungchai W. "Poly (vinylferrocene)-Polyethylene Glycol Glutamate Oxidase Electrode for Determination of Glutamate in Commercial Soy Sauces." *Journal of Microbiology & Biotechnology* 2003, 19, 479-485.
- Khunyoshyeng, S.; Cheevadhanarak, S.; Rachdawong, S.; Tanticharoen, M. “Differential expression of desaturases and changes in fatty acid composition during sporangiospore germination and development in *Mucor rouxii* ” *Journal of Fungal Genetics and Biology* 2003, 37, 13-21.
- Laoteng, K.; Pongchuachidthai, R.; Rueksomtawin, K.; Dandusitapunth, Y.; Tanticharoen, M.; Cheevadhanarak, S. “A *Mucor rouxii* mutant with high accumulation of an unusual trans -linoleic acid (9c, 12 t -C18: 2)” *Journal of FEMS Microbiology Letters* 2003, 10993, 1-7.
- Suvajittanont, W.; Chairprasert, P. “Potential of biogas recirculation to enhance biomass accumulation on supporting media” *Journal of Bioresource Technology* 2003, 88(2), 157-162.
- Chairprasert, P., W. Suvajittanont, B. Surarak, M. Tantichroen, and S. Bhumiratana. “ Nylon fiber as supporting media in anaerobic hybrid reactors: its effects on system's performance and microbial distribution ” *Journal of Water Research*, 2003, 37, 4605-4612.
- Devahastin, S.; Suvarnakuta, P.; Soponronnarit, S.; Mujumdar, A.S. “A Comparative Study of Low-Pressure Superheated Steam and Vacuum Drying of a Heat-Sensitive Material,” *Journal of Drying Technology ‐ An International* 2004, 22(8).
- Namsanguan, Y.; Tia, W., Devahastin, S.; Soponronnarit, S. “Drying Kinetics and Quality of Shrimp Undergoing Different Two -Stage Drying Processes,” *Journal of Drying Technology ‐ An International* 2004, 22(4), pp. 759-778.
- Wiyarath, W.; Somasundrum, M. and Surareugchai, W. “A voltammetric sensor for general purpose organohalide at picogramper-litre concentrations based on a simple collector-generator method” *Journal of Analytical Chemistry* 2004, Vol.76, pp.859-862.
- Ngamchana, S.; Surareungchai, W. “Sub-millimolar determination of formalin by pulsed amperometric detection” *Journal of Analytica Chimica Acta* 2004, Vol. 510, pp.195-201.
- Hongsthong, A.; Subudhi, S.; Sirijuntarat, M. and Cheevadhanarak, S. “Mutation study of conserved amino acid residues of *Spirulina r 6* - acyl-lipid desaturase showing involvement of histidine 313 in the regioselectivity of the enzyme” *Journal of Applied Microbiology and Biotechnology* 2004, 66:74-84
- Hongsthong, A.; Paithoonrangsarid, K.; Prapugrangkul, P.; Deshniem, P.; Sirijuntarut, M.; Subhudhi, S.; Cheevadhanarak, S. and Tantichroen, M. “The expression of three desaturase genes of *Spirulina platensis* in *Escherichia coli* DH5 alpha.” *Journal of Molecular Biology Reports* 2004, 31:177- 189
- Ruengjitchatchawalya, M.; Kov?cs, L.; Mapaisansup, T.; Sallai, A.; Gombos, Z.; Ponglikitmongkol, M. and Tanticharoen, M. “Higher plant-like fluorescence induction and thermoluminescence characteristics in cyanobacterium, *Spirulina* mutant defective in PQH 2 oxidation by cyt b 6 /f complex” *Journal of Plant Physiology* 2005, 162: 1123- 1132.
- Wiyaratn, W.; Somasundrum, M. and Surareungchai, W. “Votammetric detection of organohalides by redox catalysis: Improved sensitivity by immobilisation within a cubic phase liquid crystal” *Journal of The Analyst*, (2005), 130:626-631 and Also highlighted as a Hot Paper on The RSC website and highlighted in Chemical science 2005, 2:C41
- Wiyaratn, W.; Hrapovic, S.; Liu, Y.; Surareungchai, W.; Luong, J.H.T. “Light- assisted synthesis of Pt-Zn porphyrin nanocomposites and their use for electrochemical detection of organohalides” *Analytical Chemistry* 2005, 77:5742-5749.
- Rijiravanich, P.; Aoki, K.; Chen, J.; Surareungchai, W. and Somasundrum, M. “Electrode reactions of catechol at tyrosinase- immobilized latex suspensions” *Journal of Electroanalysis* 2004, 16:605-611.
- Loetanantawong, B. ; Suracheep, C. ; Somasundrum, M.; Surareungchai, W. “Electrocatalytic Tetracycline

Oxidation at a Mixed-Valent Ruthenium Cyanide-Modified Glassy Carbon Electrode and Determination of Tetracyclines by Liquid Chromatography with Electrochemical Detection” *Journal of Analytical Chemistry* , 2004, 76: 2266-2272

- Laoteng, K.; Ruenwai, R.; Tanticharoen, M. and Cheevadhanarak, S. “Genetic modification of essential fatty acids biosynthesis in *Hansenula polymorpha*” *Journal of Microbiology Letters* 2005, 245:169-178.
- Na-Ranong, S.; Laoteng, K.; Kittakoop, P.; Tantichareon. M. and Cheevadhanarak, S. Substrate specificity and preference of $\Delta 6$ -desaturase of *Mucor rouxii* . *Journal of FEBS Letters* 2005, 579:2744-2748.
- Laoteng, K.; Cheevadhanarak, S.; Tanticharoen, M. and Maresca, B. “Promoter analysis of *Mucor rouxii* $\Delta 9$ -desaturase: Its implication for transcriptional regulation in *Saccharomyces cerevisiae* ” *Journal of Biochemical and Biophysical Research Communications* 2005, 335 :400-405.
- Meechai, A.; Pongakarakun, S.; Deshniem, P.; Cheevadhanarak, S. and Bhumiratana, S. “Metabolic flux distribution for $\Delta 6$ -linolenic acid synthetic pathways in *Spirulina platensis* ” *Journal of Biotechnol. Bioprocess Eng* 2004, 9(6):506-513.
- Jupraputtasri, W.; Cheevadhanarak, S.; Chairprasert, P.; Tanticharoen, M. and Techkarnjanaruk , S. “Use of Fluorochrome-Labeled rRNA Targeted Oligonucleotide Probe and Tyramide Signal Amplification to Improve Sensitivity of Fluorescence in situ Hybridization. *Journal of BioScience and Bioengineering* 2004, 98(4):282-286.
- Jupraputtasri, W.; Cheevadhanarak, S.; Chairprasert, P.; Tanticharoen, M. and Techkarnjanaruk, S. “Use of an Alternative Archaea -Specific probe for Methanogen Detection” *Journal of Microbiological Methods* . 2005, 61:95 - 104.
- Kurdrit, P.; Subudhi, S.; Hongsthong, A.; Ruengjitchatchawala, M. and Tanticharoen, M. “Functional expression of *Spirulina* - $\Delta 6$ desaturase gene in yeast, *Saccharomyces cerevisiae*” *Journal of Molecular Biology Reports* 2005, 32: 215-226.
- Wachiraphansakul, S. and Devahastin, S. “Drying Kinetics and Quality of Soy Residue (Okara) Dried in a Jet Spouted Bed Dryer” *Journal of Drying Technology*, 2005, Vol. 23, No. 6, pp. 1229- 1242.
- Na-Ranong, S.; Laoteng, K.; Kittakoop, P.; Tanticharoen, M. and Cheevadhanarak, S. “Targeted mutagenesis of a fatty acid $\Delta 6$ -desaturase from *Mucor rouxii* : Role of amino acid residues adjacent to histidine-rich motif II” *Journal of Biochemical and Biophysical Research Communications* 2005, 339:pp.1029- 1034.
- Jeennor, S.; Laoteng, K.; Tanticharoen, M. and Cheevadhanarak, S. “Comparative fatty acid profiling of *Mucor rouxii* under different stress conditions” *Journal of FEMS Microbiol Lett* 259 2006, pp.60-66.
- Kurdrit, P.; Subudhi, S.; Cheevadhanarak, S.; Tanticharoen, M. and Hongsthong, A . “Effect of two intermediate electron donors, NADPH and FADH₂ , on *Spirulina delta 6* desaturase co-expressed with two different immediate electron donors, cytochrome b5 and ferredoxin, in *Escherichia coli* ” *Journal of Molecular Biology*, Oct 2006 published on-line.
- Hongsthong, A.; Subudhi, S.; Sirijuntarut, M.; Kurdrid, P.; Cheevadhanarak, S. and Tanticharoen, M. “Revealing the complementation of ferredoxin by cytochrome b5 in the *Spirulina* - $\Delta 6$ -desaturation reaction by N-terminal fusion and coexpression of the fungal-cytochrome b5 domain and *Spirulina* - $\Delta 6$ -acyl-lipid desaturase” *Journal of Applied Microbiology and Biotechnology* . 2006,72 (6), 1192-1201.
- Hongsthong, A.; Sirijuntarut, M.; Thammathorn, S.; Prommenate, P.; Bunnag, B.; Cheevadhanarak, S. and Tanticharoen, M. “Revealing differentially expressed proteins in two morphological forms of *Spirulina platensis* by proteomic analysis ” *Journal of Molecular Biotechnology* . 2007, 36(2), 123-130.
- Rijiravanich, P.; Aoki, K.; Chen, J.; Surareungchai, W. and Somasundrum, M. “Micro-cylinder bio sensor for phenol and catechol based on layer-by-layer immobilization of tyrosinase on latex particles: Theory and experiment" *Journal of Electroanalytical Chemistry* 589 (2006) 249-258.
- Punbusayakul, N.; Ci, L.; Talapatra, S.; Surareungchai, S. and Ajayan, P.M. “Double-Walled Carbon Nanotube Electrodes for Electrochemical sensing” *Journal of Electrochemical and Solid-State Letter*, 2007, 10(5) F13-F17.
- Chiewchan, N.; Pakdee, W.; and Devahastin, S. “ Effects of Water Activity and Hot Air Drying on Thermal Resistivity of *Salmonella krefeld* on Rawhide Surface ” *Journal of Food Microbiology* , 2007, Vol. 114, No. 1, pp. 43-49. (February 28)

- Pimpaporn, P.; Devahastin, S.; and Chiewchan, N. “ Effects of Combined Pretreatments on Drying Kinetics and Quality of Potato Chips Undergoing Low-Pressure Superheated Steam Drying ” Journal of Food Engineering , 2007, Vol. 81, No. 2, July, pp. 318-329
- Nimmol, C.; Devahastin, S.; Swasdisevi, T. and Soponronnarit, S. “ Drying of Banana Slices Using Combined Low-Pressure Superheated Steam and Far-Infrared Radiation ” Journal of Food Engineering , 2007, Vol. 81, No. 3, August, pp. 624-633.
- Kerdpi boon, S. and Devahastin, S. “Fractal Characterization of Some Physical Properties of a Food Product under Various Drying Conditions” Journal of Drying Technology , 2007, Vol. 25, No. 1, pp. 135-146.
- Thomkapanich, O.; Suvarnakuta, P. and Devahastin, S. “Study of Intermittent Low-Pressure Superheated Steam and Vacuum Drying of a Heat-Sensitive Material” Journal of Drying Technology , 2007, Vol. 25, No. 1, pp. 205-223.
- Wachiraphansakul, S. and Devahastin, S., 2007, Drying Kinetics and Quality of Okara Dried in a Jet Spouted Bed of Sorbent Particles , Journal of LWT - Food Science and Technology , Vol. 40, No. 2, March, pp. 207-219.
- Panyawong, S. and Devahastin, S. “ Determination of Deformation of a Food Product Undergoing Different Drying Methods and Conditions via Evolution of a Shape Factor ” Journal of Food Engineering , 2007, Vol. 78, No. 1, January, pp. 151-161.
- Kerdpi boon, S.; Kerr, W.L.; Devahastin, S. “ Neural Network Prediction of Physical Property Changes of Dried Carrot as a Function of Fractal Dimension and Moisture Content ” Journal of Food Research International , 2006, Vol. 39, No. 10, December, pp. 1110-1118.
- Kongsoontornkijkul, P.; Ekwongsupasarn, P.; Chiewchan, N. and Devahastin, S. "Effects of Drying Methods and Tea Preparation Temperature on the Amount of Vitamin C in Indian Gooseberry Tea” Journal of Drying Technology , 2006, Vol. 24, No. 11, pp. 1509-1513.
- • Leeratanarak, N.; Devahastin, S. and Chiewchan, N. “ Drying Kinetics and Quality of Potato Chips Undergoing Different Drying Techniques ” Journal of Food Engineering , 2006, Vol. 77, No. 3, December, pp. 635-643.
- Srisamran, C. and Devahastin, S. “ Numerical Simulation of Flow and Mixing Behavior of Impinging Streams of Shear- Thinning Fluids ” Journal of Chemical Engineering Science , 2006, Vol. 61, No. 15, August, pp. 4884-4892.
- Devahastin, S.; Tapaneyasin, R.; and Tansakul, A. “ Hydrodynamic Behavior of a Jet Spouted Bed of Shrimp ” Journal of Food Engineering, 2006, Vol. 74, No. 3, June, pp. 345-351.
- Devahastin, S. and Pitaksuriyarat, S. “ Use of Latent Heat Storage to Conserve Energy during Drying and Its Effect on Drying Kinetics of a Food Product ” Journal of Applied Thermal Engineering , 2006, Vol. 26, No. 14-15, October, pp. 1705-1713.
- Laoteng, K.; Jitsue, S.; Dandusitapunth, Y. and Cheevadhanarak, S. “Ethanol- induced changes in expression profiles of cell growth, fatty acid and desaturase genes of *Mucor rouxii* ” Journal of Fungal Genet Biol, April 2007 published on-line.
- Nookaew, I. ; Meechai, A.; Thammarongtham, C.; Laoteng, K.; Ruanglek, V.; Cheevadhanarak, S.; Nielsen, J. and Bhumiratana, S. “Identification of Flux Regulation Coefficients from Elementary Flux Modes: A new tool in systems biology for analysis of metabolic networks” Journal of Biotechnology and Bioengineering . 2007, 97(6), 1535-1549.

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• ÃÍ§¼ÙéÍÓ¹ÇÂ;ÒÃËÙ¹Â;¼Ñ¹,ØÇÔËÇ;ÃÃÃÁÂÐà·â¹âÃÃÕªÕÇÀÒ¾áËè§ªÒµÔ

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