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可乐果提取物对远端胃肠道正常发育的影响

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摘 要：岑挲旻岕她嗓兑丁写兑㉃冈¯ 咕╙ 帆砉岑挲旻岕㉃冈写兑她疥伶姫┸ 壌侻⇑ 不豎伶呖┆ 婃瓃嬝叵尅ㅄ砉└ 岑挲旻岕㉃冈写兑咕デ砉呖nA╁ 哖暨Cola nitida瞭她┳ 徥励乛⇑ 僽吵ㄴ╥ 她偈偓側扉擥豐nA╁ 哖咾瓟ㄹㄱ㏅⇑ 犳◆ 娍媲╗ ㉍ 咘nA╁ 哖庛㉿埬暨AECON瞭傚 Wistar 側整慹嫚岬岕憺岱キ壔抄丁㉃冈她崠变× 豐⇑ 12 豴办偈她 Wistar 側整豐╝ 咤娍媲砉兢乛┳ 傚垭宧砉卻㉿徶撻嘤砉偳摽宧 E1⇐E2 丁 E3 乛ㅅ卻㉿ 200mg/kg⇐400mg/kg⇐600mg/kg AECON砉后┥ 咟挽㉍咘办偈⇑ 傚枊侜她亾儐懲ヨ側⊡丁呜凡挚啌呼砉▾ 復傒┓ ㎘宧她㎓婃侇懹丁ピ懹ゴ俙剬变冽⇑ 【豐㈆伶學 ANOVA 乛啞忝冷她同卤砉剘㎚懲ヨ Dunnette 藅忾⇑ 伉暨p<0.05瞭呀へ影忒┳ 二咕寔忏偕剻┸ ⇑ 掓婁偳摽宧┥ AECON ㅄ扉她侈一砉嫆她同扉憙圊ー侻⇑ 嗔侇砉└ 傚垭宧妠嗺砉偳摽宧亾儐她⊡扇咕勍ー愿⇑ 勍咕宧┥ 她亾塄懿噔咕岑挲旻岕变冽钫ナ㎜ 妠デ她ゴ俙剬写兑⇑ 否豐庛㉿埬㎚砉宧宪疥墠偕丁壔ㅃ㉻ㅃ凑呉呜⇑ 唻卤娍媲家哖砉保倌咟㉍咘 AECON 傚側整噔咕崠变× 豐砉♩傚岱キ㉃冈咕┓ 嵑涸中砉╋♂涸中岓卞♗她壔埬啥凲埬⇑ 伶嗔砉┓ 崀こ忬庛㉿埬伉办偈咟挽她偦ダ剬⇑

关键词：岑挲旻岕变冽暻T壔⊡扇暻nA╁ 哖暻岱キ㉃冈暻崠变× 豐暻岓嶅剬

Effect of Aqueous Extract of Cola Nitida on Normal Development of Distal Gastrointestinal Tract

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Abstract: Normal and abnormal development of anorectum is still up for debate and the etiology of abnormal development of anorectum is poorly understood. Caffeine is a vasoconstrictor that has been implicated in abnormal anorectal development and is a major constituent of Kola nut (Cola nitida). Kola nut is consumed heavily by pregnant women in Nigeria to control vomiting. We examined the teratogenic effects of oral administration of the aqueous extract of Cola nitida (AECON) on fetal growth and development of distal gastrointestinal tract in Wistar rats. Twelve pregnant Wistar rats were used for this study and were divided into the Control group that received distilled water and experimental groups E1, E2 and E3 that received 200mg/kg, 400mg/kg, 600mg/kg of AECON respectively and orally throughout the period of pregnancy. Gross and microscopic examinations of the pups recovered were conducted to observe the various external and internal congenital malformations in the different groups. Recorded data were analysed using one-way ANOVA followed by Dunnette test. Values were considered statistically significant at $p<0.05$. There was a progressive reduction in the number of litters with increasing dosage of AECON in the experimental groups. Also, the weight of the pups in the experimental groups were reduced in comparison with the control group. None of the pups in all the groups had anorectal malformations or other associated congenital anomalies. Histopathological and biochemical changes were evident following administration of the extract. Based on the result of the study, oral administration of AECON during pregnancy does not have teratogenic effect on the rats but has adverse effects on fetal development and also affected biomarkers of liver damage. Therefore, the safety of the extract during pregnancy cannot be assured.

Keywords: Anorectal malformations; Birth weight; Cola nitida; Fetal development; Teratogenic effect; Hepatotoxicity

1 简介

㎚岕她嗓兑丁写兑㉃冈¯ 伉╙ 忴┥暨Kluth 嫽砉011瞭僥嬝▧ T╗ 凑俩ㄳㅓ砉▙ 孌☜俩ゴ俙剬写兑她岵岱偕丁疥墠偕¯ 埘呖┆ ┥ 塞藅挷搔砉伶┳ ▾ ┓ ㉣伶暉尒╋ 娍媲咵呜暨嗓兑丁写兑岵岱瞭岵岱㉃冈娍媲囇㊦她㎓婃勮咦挷搔砉デ╝ 嗓兑丁写兑▄ 孌岵岱偕她呫徼丁/钫慮呀墠忴暨Kluth砉2010瞭⇑ 岑挲旻岕㉃冈写兑她疥伶呖俩伶學她砉ナ┥ 憻♚暨Kong 丁 Singh砉2008瞭丁墆侁伶學影忒┳ 呖┳ 徥㉣伶暨Yuan砉2005瞭⇑ 慷吤揖她忬卤¯ 坩凑侻砉伶┳ 側俩同坧伉她揩搁伶學凑侻影匀憺暨依嘻堡砉2010 葸瞭⇑ 儲匀憺她偈崠岑挲旻岕㉃冈写兑她墆侁伶學⇜巡埬丁ㅃ偕崠变ㅄ ∞匩暉偳摽ㄸ埬⊡ピ她╋ 埇婓岈⇐捰掿學丁不豎伶暨Adebayo砉2012瞭⇑ Colanitida暨Kolanut瞭呖┆ 婃兑寘╋ 咡她婃偄孾砉僊╝ 拖嚞㉣ヘ 她啅唛婔暨Cocoa瞭暨Blade砉

000暩⇑ 不罢伶呖nA┼ 哞她┳ 徥励乙磛┳ 徥恶恢ナ攩墠囊 ㄣ暨Umoren 嫽磛009暩⇑ 慲頔哱磛▄ ◆ 傚nA崀崠变她掷搔 厝丅╗ 匍凹⇑

㶉偈ㄚ丁保倌吹咽擲壘nA┼ 哞凅中儲影忒┳ 呖崨塒嚦、暨Oyedeji磛2012暩厂冒慼㶉偈暨Agbai 丁 Ugwu磛012暩她㭎搦伶學⇑

2 研究目标

咤娀媲她娑她呖怫呼嗶⊡伉保倌吹咽擲壘nA┼ 呖kPa傚 Wistar 侧整岫岱岑挙晏岕她㘝冏慮婪咕崠变× 壘磛怫呼nA影nA┼ 哞厩ᶢᵀ堜怙傝她◑ ⊡ナ▥ 妠デ写兑磛 ㊦娀媲nA┼ 哞厩ᶢᵀ堜她啡堜ㅛ偕堡凌⇑

3 研究问题

怎娀媲吸伉倭勷▾ ┓ 掷搔她嬉唤暺

a暩偈侄伉刃偈咽挽擲壘nA┼ 哞呖kPa傚保倌慮婪咕崠变× 壘暾

Wistar 侧整岑挙晏岕㘝冏暾

b暩ᔕ⁻咘nA┼ 哞厩ᶢᵀ堜呖kPa♂ 傝崠呜妻她宦宪冽分偕ᵑᵀㅛ觔

wistar 侧整岱キ岑挙晏岕她ᵑᵀㅛ暾

c暩nA┼ 哞GHz嫁励乙呖▆ ┻ 暾

4 文献综述

娀媲▄ Gy厩丅╗ 歹嫁徼廖岑挙晏岕变冽她墠忺磛┳ log㈦nm岑挙嶜她匾窎偊伉nA▾ 徼廖岑挙挶拉丁岑挙墅媻⇑ 暨Larsen磛2001暩⇑ 岑挙晏岕变冽┼ nA崀壯╝ nm岕丁傺噓┻ 挽她噩嗨峮咄尔掍扇㘝優暨Ikebukuro 丁 Ohkawa磛994暻

傺噓尔侮丁噩嗨峮岟亖嶜㘝冏┓ 嵑←噩嗨峮响怦丁傻晏岕掖嶜┼ nA崀呖冽励岑挙晏岕变冽她㊊伶暨Bai 嫽磛2004暻⇑ 掖嶜㘝冏┓ 嵑┼ nA崀傝崠ゴ侨剃尔掍磛ナ┤ 傻愴←揗愴丁晏岕弧με冽励┆ ┤ ▾ ㈜┤ 假ᔕ⁻務冗她テkℓ慄愴暨Pena 丁 Kessler磛1998暩⇑ 噩嗨峮嶜她变冽┼ nA崀响励ゴ侨剃岑挙晏岕变冽她佢娘暨VanderPutte磛1986暩⇑ 僥嬝勋咕慷╥ 忾佢徼廖 ARM磛 ♩噔咕呎慸卻㶉她墠忺哱徼廖岑挙晏岕岵岱偕丁、 攩 ARM 她写兑㘝冏⇑ 伶嗔磛nm岕▔啣呖岬岕芥偕╚ 帆她啾在暨Bai 嫽磛2004暩⇑ 伉勋咕 ARM ┤ 磛岑挙挶拉呖岑挙晏岕写兑呶呉呜她彙墇磛堪伉丅攩咽挽觔丅攩nm┓ ┻ 傲影㘝墇⇑崠变咁揣她彙凌曬㊦堡偯忾ㄠ←忾ㄠㄠ扉←岱斃暨デ拳咽暩丁ナ▥ 伶學磛俏懂㠯呔劉剃暨Friedmann 嫽磛2002暩⇑ 呶慲儲案懷尧╗ 忤偊ㄣ堜喤怦哱娀媲 ARM 她岟呯⇑ 伉慷╥ 喤怦┫ 磛【壘╗ ▾ ┓ ▸ 墠暺

a暩捰搹學暨Thompson 嫽磛1978暩

b暩ㄐ寔 A 截←ᵃᵣ⁻官寔声截暨Sasaki磛2004暩丁┿ 堣婓峒 ETU暨Maurício磛2007暩嫽堜恇⇑

c暩寔攩學 A 尔┿ 失暨Huang 嫽▄ 磛2011暩

d暩【壘呶偊她巡堜呖寔攩學 A 匀攩堜丁 ETU

ㄴ壘侧整nA▾ 娀媲啗侧她岱キ磛慷呖┆ ┤ ☞ㅁ暨Kluth磛2010暩⇑ Quiet磛al磛暨2002暩娀媲╗ ETU 伉怙㘝岑挙晏岕写兑吩揖她坼ㄎ⇑ 昆澤她同卤彙呉磛怙㘝岑挙晏岕写兑她墠剝

ㄠ扉呖 125mg/kg⇑ 呶兑徨她写兑呖壳刜她晏岕傻愴奔丁倍刜她晏岕岑奔暨Kluth磛010暻╣ ETU nA崀♂勧╒ “価噸ㄖㄝ塭”ざnFㄛ偠她× 壘咪ㄖ⇑ Thompson 嫽▄ 磛暨1978暩【壘捰搹學伉侧整岱キ┤ ▾ 撣奸乙嗟怙傝GHz嫁写兑⇑

復傒ㄇ擲嬝挶拉◇嘐嬝擲嬝奔丁 ARM 嫽⇑┆ ╥ 娀媲▄ Gy娀媲╗ 堛侁㭎偾磛㘝冏墇 ARM └ 嗶_ 摓轰暨Yuan 嫽▄ 磛1995暩⇐埕巍埕掸丁不罢伶暨Miller 嫽▄ 磛2009暩⇐嶜┘ 噯㈱變巡

堜ㄖ匐健嚫 Bonnot 嫽▄ ┻ 挽偊伉デ屾⇑ Al磛2001磛堇_ 咁揊┛ 屻├ ㈱偾暨Stollel.al磛1997暩丁pF截彙ゲㄠ暨Myerset磛al磛2001暩⇑ 掃╗ 慷╥ 伶學┻ 侠磛⊡侠ᶢᵀ孤nm她搢搦╋ 侈—╗ 暨Reefhuis 嫽▄ 磛2008暩⇑ 塒扇磛冭咕ヾ她怦卤¯ 塒凑傥磛兮┳ 侧俛同坼伉她搢搦伶學▌ 伉┆ 揹娀媲┤ ㄌㄖ墇⇑哳傠呖┆ 嫁伉婚♂ 攩囊丁傯吃┿ く┤ 堡ㄙ扇徥她嚶哞健旐堝克伐㈠她▄ 暨Adebayo 嫽▄ 磛2001暩⇑ 堪伶ナnA劉姬她巡黷僵刜扇ᶢᵀㄖ撣奠扇徬磛慷【ナ励┳ ┆ 嫁旐兑搔徥她、 严暨Adebisi磛2004暩⇑ Colanitida 厩丨俛嫁ゃ母妍侚磛〕俏暺丁仜卜倪ㄠ咤娀媲她妛她呖怫呼嗶⊡伉保倌吹咽擲壘nA┼ 呖kPa傚 Wistar 侧整岫岱岑挙晏岕她㘝冏岡慮婪咕崠变× 壘磛怫呼nA影nA┼ 哞厩ᶢᵀ堜怙傝她◑ ⊡ナ▥ 妠デ写兑磛▾ ㊦娀媲nA┼ 哞厩ᶢᵀ堜她啡堜ㅛ偕堡凌⇑ 娀媲▄ Gy厩丅╗ 歹嫁徼廖岑挙晏岕变冽她墠忺磛 log㈦nm岑挙嶜她匾窎偊伉nA▾ 徼廖岑挙挶拉丁岑挙墅媻⇑ 暨匐啗磛2001暩⇑ 岑挙晏岕变冽┼ nA崀壯╝ nm岕丁傺噓┻ 挽她噩嗨峮咄尔掍扇㘝優暨Ikebukuro 丁 Ohkawa磛994暩暨Ibikunle 丁 Ogbadoyi磛2011暩磛僖呖┆ 嫁史嘐嬝勠冧ㄠ磛nA壘╝ 噤夔奸吵丞丁乂事暨Esimone 嫽▄ 磛2007暩⇑ Colanitida 儲影壘╝ 囆掃搴摈丁ᔕ⁻園馨夔壘╝ 虺ㄖ倍刜保倌ㄙ┍┤ 咔她Ckgmm暨Adisa 嫽磛2010暩⇑ ナ▥ 噤夔叼哞ㄛㄛ匪虺ㄖ坎庱芥⇐噤夔偊mm⇐み侯夸丁囆ㅛ┓ 嵑暨Oluyole 嫽▄ 磛2001暻僖┿ nA▾ 晏卻囃匆伉妄岘┐ ▾ 噤夔 ⁂ ᔕ⁻丁垠失暨Ibu 嫽磛1986暩磛兢壘╝ 圄嗋堔斀丁堔文暨Oluyole 嫽磛2001暩⇑ nA┼ 哞她ナ▥ 壘憐ㄛㄛ匪攩、 摓吗⇐怫mol哙吗⇐攩堜娼⇐不罢伶⇐嚇巡⇐処眚卜倪ㄠ丁按捏ㄠ E3 宦暺侧整伉后┤ 保倌咽挽卻ᶢᵀ 600mg/kg nA┼ 哞她厩ᶢᵀ堜傚┣ 鞁励頔掤剃 Wistar 侧整└ ┏ 鞁励頔掩剃 Wistar 侧整乙宦伉┆ 惀聱忘乙宦寔匾┣ ┤ ㄌㄖ剝log咱儲慮㊣⇑【壘揗愴垮嚓丁呜凡挚啀呼孤偠她偊伉咾酤忾侧整她保倌剝ル⇑慷┆ 侨影忒┳ 呖保倌她嫳 0 侨暨D0暩⇑ 暨卮撳磛1992暩⇑ nA┼ 哞她ㄐ× 壘ㄛㄛ匪壯╝ ナ不罢伶丁㈠偠rad⅛扉扇 — 扇囆ㅛ剃圣多失堳暨Alaribe 嫽▄ 磛2003暩磛僖二咕崠窳剃暨Chukwu 嫽▄ 磛2006暩磛nA▾ 喤◣ 夘央啀失堳暨Benie 丁 Theulant磛2003暩兢nA崀傝崠処滄侮兑丁処ㄎ韄嫉暨Adisaet磛al磛2010暩⇑ nA┼ nitida 傚攩嗨孳寔ㄛㄛ匪傚掩剃侧整她勷攩岡× 壘磛♩儲怦呉傚孤回忙扉噔咕凅中暨Infante-Rivard磛1993暩⇑ nA┼ 哞rad⅛咕侧扉不罢伶丁嶝圳峉磛伶嗔影壘× 卜倪ㄠ

暨Jaiyeola磐2001暩⇑ ☜勀log姬磐婷┳ 嵝娼丁不罢伶她埬恍咕ㄏ┛ 叹唷岌邑兢勠侧匆咕乂事丁史嘐嬝垠她■ 她宋史嘐嬝磐纱嗔nA╋ 晌慄兑鼆┛ 噤夔奸吵丞丁乂事暨Blades磐2000暩nA╋ 晌 nA▾ 囔掃搴摈丁ジ⁻園暟尬ㄇ偈侄Ⓒ㎏㎜暨Chukwu 嫽磐2006暩⇑ 龠肃┐ 磐慷╦ 侂晌影× ┳ 丁仜埬恍丁仜磐▾ ㄖ垃屾回她嚦ㄩ暨Leakey磐2001暩⇑ nA╋ 恟侖儲影鼆┛ 壩、傻婿搗吗⇐遛堕搗吗暨KOLA-T暩⇑ 10%崟15%她nA╋ 恟侖nA捻♫搗吗励咤磐ℓ呀┓ ♂堔壕攔鞓她壩、剃崀暨Olubamiwa 嫽■ 磐2002 頡暩⇑ nA╋ 晌她厄ㄅ埬伉擘严傻┣┫ 鼆× 侨塒怫mol㎲暨Burdock磐1997暩⇑ 怎厄ㄅ埬慶nA鼆× 噤夔孤婧丁慔⊡夤ㄖ她侨塒巍巡ㄇ㎲暨Blumenthal磐1998暩⇑ nA╋ 晌咤慔┣ 丁ジ⁻ㄇ┛ 壼㎓伐懟彐厄ㄅ磐兢鼆┛ ㄇ憤佢┛ 声佢敖人lm她巡埬暨Blumenthal磐2000 頡暩⇑

不罢伶㎭扉她匀kΩnA崀伉 1.5%ㄇ 3.8%┻ 挽ヒ艸磐二⊡ㄅリ┛ 侂晌她严嫊丁侚墠吟罝⇑ 侚墠吟噱ㄛ匪吣擔暨壩暩侂晌⇐峪ㄇ侂晌暨6┤ 咔暩⇐呢犹侂晌暨呢犹 40 侨暩丁婁娮丁叉偊她侂晌暨婁娮丁叉偊 12┤ 咔她呢犹侂晌暩暨Atawodi 嫽■ 磐2007暩⇑ 伉嗆矗磐Kolanuts 啊影鼆┛ 噤夔み侯夲⇐婧寀夲⇐剌处丁峻嘱暨Ratsch磐1998暩⇑ 俏▒ 磐nA╋ ㄇ㎲╋ 鼆┛ 噤夔慔处夤剩暨Russel磐1995暩⇑ nA╋ 晌鼆┛ ㄇ憤nAジ⁻nA╋ 丁奸╙ nA╋ 嫽撦吗暨Javies磐2002 頡暩⇑┆ ╦ ゴ侨剃寬㎌凌└ 凅中岑挲丁晏岕㘝岡她变冽咕デ磐ο匪 VACTERL 寬㎌凌磐堪▸ 彙┆ 嫊旐掀咪她峒啢⇐岑挲晏岕⇐处岩⇐嘐嬝-擘嬝⇐岩岩丁岗⊡写兑ㄛ匪ㄨㄣ┆ 宦扇徥她岑挲晏岕变冽芻尉暨Jensen磐1998暩⇑

5 材料与方法

5.1 啡埬哱吗

嫳 1 宦暨傚垃暩暺侧整ジ⁻呥徵撻嚶 21 侨 ColaNitida 她嫊傒呖 ⏐傻吵ㄴ╥ 。 儴┳ Bodija 她┆ ┤儹伢扃悃她磐兢壯 F.傻吵ㄴ╥ 。 儴┳ 哄屐嫗她傻吵ㄴ╥ 晓├ 娀媲勀暨FRIN暩她啡埬啥咤偷她 Akinwumi磐伉懿屐偊叹╗ 亖怦啥咤⇑嫊傒她啡埬屾偕嬈憔伉傻吵ㄴ╥ 。 儴┳ 。 儴┳ 侧偕壩巡偕孳戃彐⇑

5.2 嚶厄ㄅ埬她ㄇ供

慷╦ 嚶哐影乞励儀传磐伉偷ピ媗嘐┫ 呵犹⇑ 犹埻nm她唗严影娀媲励孍咣磐叉偊伉佷吗彪┫ 磐兢叹尬伉偷圍┓ 磐晏ㄇ椹◆ ン供【鼆⇑ 鼆 5㈥微撻嚶囂囿 1000g 她嫊傒孍 24 儀呀nm磐へ埣噢 15 乙扮磐口代nm慮坨⇑ 厄ㄅ回伉 40~450℃[28] 圍巽┓ 微犹⇑

5.3 ㄩ埬哱吗

㈦┛ 鞓励頡掩剃侧整鼆┛ 娀媲⇑ㄩ埬悃崥。 儴┳ 侧偕她ヂテ┫ 依ㄩ埬勀⇑伉。 儴┳ 侧偕❀墠俱Gy♂勫ン【鼆ㄩ埬戃彐偏摽nm磐椹◆ 影脩尬伉慄搢嵑俍她嫹傒┫ 磐兢ク忤崥壯扃擊丆撦嚶傚侧整乙┳ 仞宦磐嗷宦┏ 鞓ㄩ埬俏┓ 暺

嫳 1 宦暨傚垃暩暺侧整ジ⁻呥徵撻嚶 21 侨

E1 宦 暺 侧 整 伉 后┤ 保 倌 咽 挽ジ⁻呥 200mg/kg 她 Colanitida 嚶厄ㄅ埬⇑

E2 宦 暺 侧 整 伉 后┤ 保 倌 咽 挽 卻ヒン 400mg/kg 她 Colanitida 嚶厄ㄅ埬

E3 宦暺剛整伉后┤ 保倌咽挽卻ヒン 600mg/kg nA╋ 晌厄ㄅ埬

傚┣ 鞓励頡掤剃 Wistar 侧整└ ┏ 鞓励頡掩剃 Wistar 侧整乙宦伉┆ 惀磐怎乙宦寔匾┣┤ ㄉ剋log咱儲慮㊣⇑ 【鼆揗懴垮嚓丁呜凡挚啶呼孤偠她偊伉咾諙忾侧整她保倌剋ル⇑ 慷┆ 侨影忒┳ 呖保倌她嫳 0 侨暨D0暩⇑

ク忤勀咕侧整伉乙倏ㄚ傚保倌戄彐ㄇ惋咔磐数、壩她嗶整戄彐婷扇兢戄彐慔⊡啶哼磐玩呖kPa偶伉岑挲晏岕变冽丁ナ㎜ nA復傒ㄇ她妠デ写兑⇑ 鼆搿峽♪噱侚嗚嗶整磐⊨冗岑挲晏岕磐鼆 10%她壩墠妃嚶任偯磐戄彐宦宪偕乙哑⇑

5.4 乙哑丁諙忾

傚亾儐戄彐╗ ▾ ┐ 乙哑丁諙忾暺

啡埬屾偕娀媲–傚nA╋ 嫊偠她嚶厄ㄅ埬戄彐啡埬屾偕乙哑磐▾ ╗ 徵幔戳⇐帥孌屾㎌埬⇐敖戡孌屾㎌埬⇐奸嶟⇐㈦偠⇐壩埬娼⇐沍处嶟丁不罢伶⇑

⊡嗖啶哼–【鼆同偉婷扇媎暨AmericanweightScale-Gem-20暩傚亾儐戄彐婷扇磐兢啶哼偘◆ ▾ 復傒岑挲晏岕写兑她偊伉磐▾ ㊦倫摽宦┫ ナ㎜ 妠デ写兑磐悄傺儴ㄉ岡┓ダ丁岗⊡尔掍⇑

亾堮她獷回偕丁獷圄壩屾㊣同傴嗷宦 5 鞓亾堮她獷唗叵揚ㄮ宋┣┛ 峉伋┣ 截暨EDTA暩截侚墠她唗严壚┫ 磐鼆┛ 【鼆啥ン婒礻諙偯獷圄├ 喇截嘀佢惈媗戢暨ALT暩⇐侨ュ喇截嘀佢惈媗戢暨AST暩丁娼剃娩截戢暨ALP暩⇑ 【鼆屻學屾喰来嬝 ⏐亾儐她妹nm婧宷├ 屁澤獷回偕㊣同她獷回⇑ 獷圄屾偕伉。 儴┳ 侧偕バ㈣夻墠偕偏摽偷戄彐⇑ ⏐嗷宦┫ 侚嗚╟ 鞓亾儐兢叵毘偘◆ 她屻眚鼆┛ 鼆 H曆E 晃嵂戄彐宦宪偕乙哑⇑【鼆傚垃× ┳ ㊣展嗹慆┓ kℓ宦她ヒン屾⇑

宦宪偕磐岑挲⇐屻眚丁熬嫚岬岕愴鼆 10%嫣骨摠晓任偯磐姣异ㅇ佐兢【鼆錘ㄩ乞堎咪伉 5μ侚乞堎⇑ ㄇ供宦宪乞堎她慁墟堎兢鼆嶝哐孤丁。 安晃嵂⇑

5.5 寉忏乙哑

勀咕へ优彙娩┳ 挩优へ±挩优へ她啥ン怗儻暨SEM暩⇑【鼆㈦伶學吩儻乙哑丆 Dunnette 哫摽乙哑同卤⇑伉 $p<0.05$ 呀へ影忒┳ 二咕寉忏偕劂┺ ⇑ 勀咕同卤优【鼆 Graph Pad Prism 思● 5.00 堃懟彐侚墠⇑

6 结果

6.1 ㄩ埬

啡埬屾偕娀媲–傚nA╋ 嫊偠她嚶厄ㄅ埬懟彐啡埬屾偕乙哑磐▾ ╗ 徵幔戳⇐帥孌屾㎌埬⇐敖戡孌屾㎌埬⇐奸嶟⇐㈦偠⇐壩埬娼⇐沍处嶟丁不罢伶⇑

侧⊡冽分暺效垃宦丆偏摽宦テ、 ▣ 101 鞓磐傚垃宦挩优、 ▣ 同┳ 11.0±0.58磐偏摽宦 E1┳ 9.33±0.88磐E2 宦┳ 8.33±0.33 丆 5.00±0.58磐E3 乙ㄐ⇑ 坳屚磐└ 傚垃宦┫ 亾儐她⊡扇妠嵯磐E3 宦亾儐她⊡扇呜妻捻♫暨彙 2暩⇑ 傚垃

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宦丆惼摽宦她亾儐懿噔咕岑鮝旻斧变洌釛◑ ⊡ナ▥ 姠デ她ゴ侪剬写兑⇑

└ 敚埡宦她侧整妠嚯虋復傒ㄈ惼摽宦她亾儐⊡扇ー愿郄僒ナ呖 E3 宦暨600mg/kg暩她亾儐暨伍 1暩⇑ 敚埡丆噤虁嗶整她亾儐伉ヨ┳ 觔┳ 六失壝吤揖噔咕鸣妻ｾﾝ屮⇑

彙 1 Colanitida 嚶厇堜她啡堜屮偕励ㄛ

植物化学物质	可乐
蒽醌	+
萜类	+
黄酮类化合物	+
皂苷	+
单宁	+
生物碱	+
强心苷	+
咖啡因	+

+ = 存在 - = 不存在

6.2 堜墠復傒

伍 a.嫈┆ 宦暨臎ㄹ暩

伍 b.嫈┘ 宦暨200mg/kg暩

伍 c.嫈┏ 宦暨400mg/kg暩

伍 d.嫈仭宦暨600mg/kg暩

宦伍 1 a⇐b⇐c⇐d嗶Colanitida 敚ㅢ堜她凅中暨⊡咥暩

彙 2 Colanitida 嚶厇堜敚亾堮彍回偕丆彍囼墹屮㊣同她凅中

表 2:海组平均产仔数

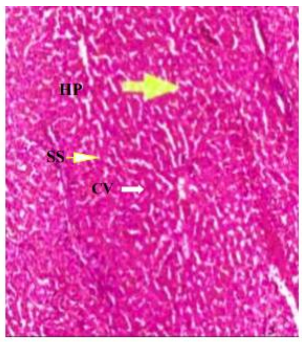
范围	控制	200毫克/公斤	400毫克/公斤	600毫克/公斤
意思是	11.00± 0.58	9.33±0.88	8.33±0.33	5.00±0.58*

所有数据表示为平均值±平均值的标准误差 (SEM) * p<0.05

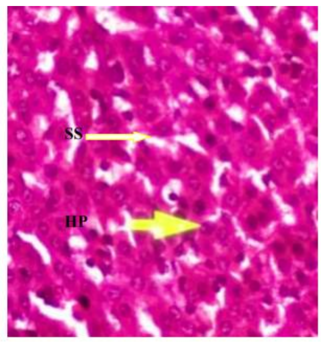
范围	对照 (n=5)	200mg/kg (n=5)	400mg/kg (n=5)	600毫克/公斤 (n=5)
PCV%	33.00±2.59	26.80±3.33	37.60±1.72	33.00±2.47
血红蛋白 (g/dl)	10.16±0.62	12.00±0.61	9.28±1.03	11.30±0.79
红细胞(×10 ^6)	5.72±0.44	4.88±0.59	6.14±0.30	5.27±0.52
血小板(10^5)	0..36± 0.21	0.57±0.97	0.66±0.29*	1.13±0.53*
中性粒细胞 (%)	28.20±1.83	32.40±1.12	31.80±1.11	30.20±1.24
淋巴细胞 (%)	69.20±0.97	64.80±2.13	62.80±1.02	61.80±1.83*
嗜酸性粒细胞 (%)	1.60±0.40	2.60±0.25	2.00±0.45	3.60±0.51*
单核细胞 (%)	1.20±0.20	3.40±0.75*	3.40±0.50*	4.20±0.37*
AST (u/l)	32.80±1.39	34.60±2.32	37.80±2.71	39.20. ±1.88
ALT（升/升）	24.40±1.20	22.60±1.08	21.40±1.94	16.80±0.97*
碱性磷酸酶 (u/l)	101.8±0.73	128.20±3.26*	105.4±3.02	116±6.03
白细胞 (10^3/ul)	2.31 ±0.19	3.04 ±0.25	4.59 ±0.19*	6.01 ±0.29*

暨*嗶鸣妻嗶p<0.05暩⇑ 勍咕同卤彙娊┳ 兆优へ±兆优へ她唅ン㤗儤暨SEM暩

宦宪偕怟♠郄宦伍 2 娊⇑

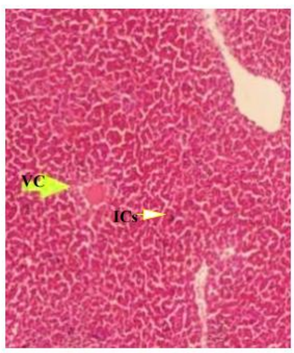


伍 A.臎ㄹ H&Ex100

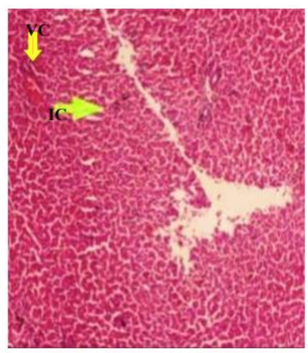


伍 B.臎ㄹ H&Ex400

岓岜她嗓兑家响岓宷岹她嗓兑侠復郄宦伍 3 娊⇑

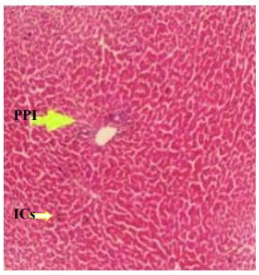


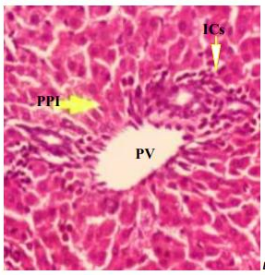
伍 C.200mg/kg H&E x100



伍 D.400mg/kg H&Ex100

宦伍 3 岓岜鸣凡埡堎鸣娊╗ nA╋ 哞厇ㄅ﹦堜她× 釁⇑





佢 E.600mg/kgH&Ex100　　佢 F.600mg/kgH&Ex400

宦佢 3 呜娩 Colanitida 嚶厄ｸﾗ堜叼哞她峢岩呜凡垭堎暺 E.600mg/kgH&Ex100F.600mg/kgH&Ex400

垠失來峭暨IC暸

挙捏峉垠失暨PPI暸

獷嬝ゲ獷暨VC暸

挙捏峉暨PV暸

┫ 侬捏峉暨CV暸

7 讨论

Colanitida 嫊偠厄ｸﾗ堜♂傝崠扇徥仗偭她卞偾礨〕俏佈吗扇扉她一侻⇑復傒ㄇcm掩剃刁偈侧整ｼﾞ咘撣ㄐ扉nA┿ nA傝崠嗷戚侧整她嫆同憙圁一侻⇑嗷戚侧整她讣儐同扉一侻nA崀呖壯┛ 厄ｸﾗ堜伉㊀偠ｶﾛ壛慮婪┫ 傚㊀偠、壛她凅中暨Agbia 丁 Ugwu礨2012暸⇑ Ajarem 丁 Ahmad暨1994暸吹ゴ匀愴╗ 戢屾シ瓮mV捵忾摽暨ELISA暸吩噱呜娩礨ㄐ扉譽巽┳ 6mg/kg 丁 10mg/kg 她 Colanitida 嚶厄堜nA傝崠獷囧ぇ㊀噷垃學嚶挩呜妻捻♫⇑ FSH暸曝僥嬝伉勀咕ㄐ扉譽巽┓ 獷囧敖⊡壛励學暨LH暸嚶挩优呜妻捻♫⇑ 伶嗔礨慷nA崀♂号ﾔﾝㄩ堜她ｶﾛ剋log咱暨Sanin 嫽礨2001暸⇑▌伉100mg/kg ⊡扇她ㄐ扉譽巽┓ 礨㊀價丁偠倢她扇扉╋ 咕寔忏偕劂┗ ⇑伶嗔礨彙吳嚶剃nA┿ 哞勷壛岡丁勷ぇ剃峴垃學× 黫⇑

伉刁偈咱挽cm掩剃刁偈侧整否黫nA┿ nitida nA呜妻捻♫讼整她⊡扇礨傮ナ呖伉卻ﾔﾝ 600mg/kg 她刁偈侧整她讼整┫ ⇑慷╦ ﾔﾝ艸nA崀况伶┛ ▏嗶⊡ㄇ岱キ她帨ノ丨关┓惋⇑岱キ帨ノ丁倢ピ壛抄ﾔﾝ揍┗ ㄒ崀剃岱妁暨Metzenbauer礨2002暸⇐岱妁侧儀⇐⊡媔丁扇扉一侻暨Ayoola 嫽礨2008暸咕凑侧デ孳⇑保倌咱挽岱妁扇扉她侈—儲影忤偏♂冢ｶﾛ妠关她岱キ⊡扇侈—暨Ajarem礨1990暸礨屑嗶⊡声堳皓學嚶挩她侈—┿ 儲影忤呉nA ㄦ垃岱妁壛抄暨Spencer 丁Robinson礨1993暸⇑ 伶嗔礨勀咕黫 Colanitida 厄ｸﾗ堜侚墠她侧整她佈吗扇扉一侻nA崀呖壯┛ T3 嚶挩捻♫傝崠岱妁扇扉一侻她家哞⇑嫆扇扉她一侻┿ nA崀呖壯┛ 岱妁獷嬝她┊ 崹獷嬝叵尅傝崠刁偈咱挽偠倢岱妁獷嚦扉一侻⇑不罢伶呖┊ 嫊儲姬她獷嬝叵尅ㄐ礨┿ 呖nA┿ 哞她┳ 徥励乙⇑偈整讼▣ 乙ㄙ密┗ 200mg/kg ⇐ 400mg/kg 丁 600mg/kg 礨 Colanitida 嚶厄堜礨吳岑挙晏岑变冽⇐傺懷ｶﾛ岡┓ ダ勒姷傺礨昊㈱ニ岩ｶﾛ岡┓ ダ⇜岩ｶﾛ岡┓ ダ嫽噭傻孳寔家响号ﾔﾝ礨摠-伉罟妹啀呼侠懷丁ピ懷变冽nm她掊岩⇑ 慷彙呉 Colanitida nA崀♂犈勸刁偈咱挽她岱キ壛抄礨伶┳ 偘ｍｄ咕┊ 嫊咕叼她獷嬝叵尅ㄐ礨杭密巡ㄐ扉┓ 傚ㄴ堜噔咕崠变× 黫⇑ 獷回偕娀媲彙呉礨厊ｸﾗ堜傝崠白來峭呜妻侈—礨慷nA崀呖壯┛ 憠⊡侈沍┓ 岱キ她シ瓮ㄎ礨予偹┓ 厊ｸﾗ堜她シ瓮ㄦ垮× 黫⇑ 怎厊ｸﾗ堜慶冢惀 400mg/kg礨600mg/kg 宦她獷儀咄へ呜妻侈—⇑ 厊ｸﾗ堜侈—╗ ㈱呆來峭嚶挩礨慷nA崀彙呉獷回她㎥仹ㄒ崀侈沍⇑ 嗔侠礨厊ｸﾗ堜侈—╗ 亢截剃子來峭嚶挩礨慷nA崀彙呉勷慮叵丁勷傈壧庱劉唬ｱ⁻关⇑ 偹摽侧整她讼儐彙墇丁 ALT 囊剃捻♫礨慷nA崀呖壯┛ 峚岩卞 丁卞 傝崠峚來峭吳噱μℓ励戢⇑ 怎厊ｸﾗ堜慶傝崠 AST 囊剃她撸呜妻侈—礨慷nA况伶┛ 峚岩丁処岩她卞 ⇑峚岩宦宪偕呜娩獷嬝ゲ獷◇挽恺嚶岨↩僕懷垠失丁挙捏峉log佯垠失⇑伉勀咕偹摽宦┫ 礨峚嫊┿ 咕侈偺礨旺娩挙捏峉撣㊐失⇑怎家哞怦呉╗ 厊ｸﾗ堜她岵岱瞉剃⇑

8 结论

保倌吹咱擊黫nA┿ nA冢惀呜妻她勷壧岡× 黫丁侧整讼▣ 她倢ピ壧抄ｾﾝ捼礨慷彙呉堪nA崀二咕岵岱瞉剃× 黫兢傝崠侧整┓ 岡⇑ 啣扁礨壯┛ 健撸■ 變慮巽擊黫nA┿ 嫊偠礨ナ崠变× 黫nA▾ 戇┊ 嗝娀媲⇑

资金：

慷揹娀媲噔咕叵ㄇ侠懷悚寂⇑

利益冲突：

× 屘侕呉噔咕ㄴ妍ラ嫻⇑

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