



Characterization of specific and non-specific parameters of kemuning (*Murraya paniculata* (L.) Jack) leaf simplicia

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ABSTRACT

Abstract: Kemuning leaf (*Murraya paniculata* (L.) Jack) has been empirically used as an antibacterial, anti-inflammatory, and antioxidant agent, yet quality data on simplicia derived from locally cultivated plants, particularly in Batam City, remain limited. This study aimed to determine the non-specific parameters (moisture content, loss on drying, ash content) and specific parameters (water- and ethanol-soluble extractive values) of kemuning leaf simplicia, and to identify the phytochemical constituents present. Simplicia was prepared from three-month-old kemuning leaves that were harvested, sorted, dried, and pulverized, then tested according to the Indonesian Herbal Pharmacopoeia, 2nd Edition. Phytochemical screening was performed using colour and precipitation reactions, complemented by thin-layer chromatography. The results showed a moisture content of 10%, loss on drying of 0.32%, water-soluble extractive value of 9%, and ethanol-soluble extractive value of 7.6%, all of which met the requirements of the Indonesian Herbal Pharmacopoeia, 2nd Edition. In contrast, the ash content of 26% far exceeded the maximum limit of 6.5%, presumably due to external mineral contamination and incomplete ashing. Phytochemical screening gave positive results for alkaloids, flavonoids, saponins, and tannins, and a negative result for terpenoids. The kemuning leaf simplicia examined generally met most quality parameters, but the deviation in ash content indicates that improvements in the sorting and sample preparation stages are needed before this simplicia can be recommended as a fully compliant raw material for traditional medicine.

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1. INTRODUCTION

Indonesia has high biodiversity, including various types of plants that have been used by the community for generations as traditional medicine. The use of medicinal plants based on local wisdom continues to be a relevant research topic, both from the aspect of ethnopharmacology and the characterization of the quality of raw materials, considering that the development of traditional medicine into standardized preparations requires adequate scientific data regarding the identity and quality of the simplicia used [1]. One of the plants that has potential but has not been studied much in terms of the quality of its simplification is kemuning.

Kemuning (*Murraya paniculata* (L.) Jack) is a plant of the Rutaceae family that grows wild or cultivated as hedge and ornamental plants in various regions of Indonesia. Empirically, kemuning leaves have long been used by the public as a medicine for vaginal discharge, toothache, and menstrual decay, and are believed to be efficacious as antibacterial, anti-inflammatory, and lowering blood cholesterol levels. Various recent studies have confirmed these efficacy: kemuning leaf ethanol extract has been proven to have very strong antioxidant activity and is toxic in the Brine Shrimp Lethality Test [2], has antimicrobial activity [3], contains significant amounts of tannins [4], potentially as an antidiabetes in test animal models [5], and exhibits antibacterial effects when combined with moringa leaf extract



against bacteria *Escherichia coli* [6]. This biological activity is generally associated with the content of secondary metabolites of the alkaloids, flavonoids, saponins, and tannins found in kemuning leaves.

Despite the potential for RMAI Colloquial Blood A Piece of Cloth h balnyalk dithelites, from lta Mengenali mutu simplisial da A Man Who Has Been Raped hlsrkaln palra Specific Meter Da n non-specific hal Sil Budi Dalyal lokal ma SIH SAINGAIT Terbaltals, in particular l untuk talnalma n yalng ditalna lM di wilalyah Kotal Baltalm, Kepulua lN Rialu. Paldal hall, penetalpaln palra Simplification Quality Meter l Merupalkaln talhalp alwall ya A Determination l n before sualtu balhaln alThelm dalpalt dikembalngkaln more lNjut Menjalin extraslk malUpun Ready lal n obalt tralDisional l, sebalgal lMA lna l TELAlh balnyalk dilalKukal n paldal Simplisial da A DA l n rimpalng talnalma n obalt lalin, such as da A Senggalnor [7], da lal balwalng meralh [8], rimpalSquirrelly [9], da lal kemalNGI [10], da A beluntals [11], biji alllpukalt [12], da lal leilem [13], baltalng alka lR Kuning [8], da lal herbal Seledri [14]. KalJialn tumbuhaln obalt berba lSis KealRifal n lokal l semalitlm is also l Menjaldi SalThelh salThat's the topic.lNg continues to hunt l n the Context of Juror l l Kefa Knowledge lRMA lSIA l n da lal obalt tralDisional l na lSional l [1].

Penetalpaln palra Non-specific DA meters l n specific simplisial have a position l n penting da lThelm ra lNTa l l Enthusiast lNGA l n obalt tralDisional l, ka lRenal Kedua l PA Group lra lThe meter is lLing Lingslpi. Palra Non-specific JE meters lMin Kealma lna l n da lal kestalbilal n Physical simplification l Selalma l Collector lna l n, sebalngkal n palra lMeter-specific lMBA l rkal n ka lNdunga lN Senyalwal yalng secalra l ThelBlessings litalN Dengal n alKtivities fa lRMA lKologis SualYour simplicity l. Your lNPA l daltal mutu ya lSã Paulo l, sua lYour simplicity l Difficult to Understand l nggungjalwalBKAl n kealma lna l nnyal Although secalra l Empiris Screen l h lalma l digunalkal n malsyalralkalt, sebalgal lMA lna l Ditegalskal n da lThelm Fa lRMA lHerbal Coffeell English l Edition II sebalgal i alCUA l n Official FTA lNes lR mutu simple l da lal ekstrak tumbuhaln obalt in Indonesia l [15].

Berdal hlsrkal n uralia l n the researcher, lThis n is aimed at l n Determinel n nilali palra Non-specific meter, yes ltu ka lda l al lR, shrinkage dryer l n, da lal ka lda l albu, sartal palra Specific meter, yes ltu ka lda l salri la lrut alir da lal ka lda l salri la lrut etalno l, da lri simplisial da A Squirrel l ng dibudidalyalkal n di Kotal Baltalm, da lN mengidentifiyou golongal n Senyalwal Phytochemicals l yalng terka lDunkin' Donuts lThelmnyal. KebalRual n research l n this is lethallk paldal Provider lal n daltal ka lra lKTERISA lThe Simplistic Quality l da l n kemuning da lri talnalma n yalng ditalna l n da lal dipal n da lThelm controlled condition, yes lNg Selalma lThis is not yet a balnyalk dilalporkal n, sekalngus menjaldi balhal n evalLualif alwall mengenalOn the other hand, Kessar lial n PA Process lSCAlpa lA Simple Wayna l terhalda l perylalra lta l n Fa lRMA lHerbal Coffeell English l Edisi II [15]. KebalRual n this is al l lokal da lal alplikatif, bukal n paldal Testing Methodsl n balru, so that l halSil Researcher l n ini pallng releval n digunalkal n sebalgal i daltal Pembalnding alwall ba lGi PelalKu USA lhal obalt tralDisional l skalThel small in the arealyah.

2. RESEARCH METHODS

Tools and Materials

Al lalt yalng digunalkal n meliputi timbalngal n al na l litik digital l, oven, desika ltor, krus porselen, calwal n pengualp, talng krus, lalmpu ultraviolet, bejalna l chroma lto lralfi (chalmber), plalt chroma lto lralfi la l pistipis (KLT) berukura l n 1 × 10 cm, botol ma l seralsi berwalrna l gelalp, lalbu Erlenmeyer, gelals ukur, corong ka lcal, da lal kertals salring. Balhal n yalng digunalkal n alda l l hda l kemuning segal r yalng dipal n da lri talnalma n berumur tibal bulal n, etalno l 96% da lal 70%, alka lal des, chloroform, n-heksal l t, metalno l 70%, sartal perealksi Ma lyer, FeCl₃, da lal serbuk seng untuk keperlual n phytochemistry l.

Research Methods

Simplisial da l n kemuning dibualt melallui talhalpal n sortalsi balsal h, pencucial n, peraljalngal n, dryer l n dengal n calra l dialngin-alnginkal n paldal l temperature rualng situl l l l ri, sortalsi dry, da lal introducer l n, untill obtained simplicia powder l sebalnyalk 56 g da lri 81 g da l n segal r. Extralksi dilalkukal n secalra l l bertingka l usi ng lkal n method ma lseral lsi with l n pelalrut etal zero 96% gap lma l 3 × 24 jal n, tonguel njutkal n with l n sokletalsi si untill obtained filtralt seba l llk 320 mL, yes l ng then l n chocolatelsi menjal in 50 mL da lal sensitized ltkal n menjal in 20 mL ekstrak kentall.

Non-specific meter testers include lda l alir, dryer shrinkage, da lal ka lda l albu, tonguel l n with l n method of gra l l vometry usi ng lkal n oven paldal l temperature 105 °C interval lma l l 30 minutes per cycle per cycle lk threel cycles untill the weight of the constabulary l n is obtained, measuring lcu paldal Fa lrmalcopy of Herba l l Indonesia l Edition II [16]. Calculation of the shrinkage of the dryer l n usi ng l l n Persia l l n Persia l lma l n:

$$\% = \frac{(W - W_1)}{W} \times 100\% \quad (1)$$

Dengal n W alda lThelh bobot sa lMPEL Alwall (g) da lal W₁ alda lThelh bobot sa lmpel setela lH Pemalnal hls l n/pengal bual n (g) [15]. Tester l n palra Specific meters include KA lda l salri la lrut alir da lal ka lda l salri la lrut etalzero, defined l n Dengal n calra l memalwill be lSi 5 g Simplisia powder l da lThelm pelalrut ya lNG SESUAL i selalma l 6 jal n and l n Pengocoka l n berka lThel, Didia.lMKA l n 18 jal n, then l n Sum lH Filtralt dualPKAl n hinggall Dry Da l n is calculated as a percentage lse ka lda l salRinya l Uselkal n persalma lal n:

$$\% \text{ kadar sari} = \frac{\text{berat sari}}{\text{berat sampel}} \times \frac{\text{volume total pelarut}}{\text{volume filtrat diambil}} \times 100\% \quad (2)$$

Identify you golongan Senyawa Dilakukan Dengan Kromatografi Thin using kalium permanganat: Ethyl Alsetat: N-HEKSANAL (6:2:2) pada plat berukuran 1×10 cm, following the principle of pemisahan berdasarkan polaritas. Sebagai standar digunakan pada Identifikasi golongan flavonoid dan Senyawa Phenolics [16], [17]. Screening phytochemistry dilakukan pada masing-masing an extra 0.5–1 mL ekstrak Simplicia Powder yang telah dilarutkan, including wa test RNA dalam Scavenger Hunt Test untuk the group alkaloid (perekasi Mayer), flavonoid (reaksi dengan Zinc Dust Powder HCl), itsponin (foam test), yourl (FeCl₃), dan terpenoid (alishm alsetat alhidrous dalam HCl pekat).

3. RESULTS AND DISCUSSION

Hasil test dalam palarmeter non-specific dan specific simplisial dalam kemuning disalin pada Tabel 1.

Tabel 1. Hasil test dalam palarmeter non-specific dan specific simplisial dalam kemuning

Parameter	Hasil	Requirements for Indonesian Herbal Pharmacopoeia Edition II
Kadar air	10%	$\leq 19.0\%$
Shrinkage of dryer	0,32%	$\leq 10\%$
This is the case	26%	$\leq 6.5\%$
Kadar sari larut air	9%	$\geq 7.9\%$
Kadar sari larut etanol	7,6%	$\geq 6.4\%$

Kadar air simplisial dalam Piece of Cake 10% meets Baktis malKsimal FARM Herbal Coffeell English Edition II, yeslitu tidak more dari 19.0% [15]. Nilai this shows dalam HWA drying process Dengan kal dialGIN-AINGinkan pada Suhu Rual Ng Selama 3–4 hari SudalH is quite effective in lowering kadar air simplisial to the top yang almal dalam Growth mikrobes dalam realKSI enzymelonly Perusak senyawa aktif, sejatThe Dengan hasil kalrakTERISAIYes, simplisial dalam Senggalnor dalam simplisial RimpalOf the Squirrel Yesng jugal Meet the Sagelralt kadar air and Setelah drying yang memaldali [7], [9]. Nilai shrink dryer sebesar 0.32% judal jatuh di dalam baktis malKsimal 10% [15], consistent with dalam rendahnya kadar air simplisial.

Kadar sari larut air dan kadar sari larut etanol Masing-malStuttgartr 9% dan 7.6% meet syalralt FARM Herbal Coffeell English Edition II yesng menetalPKAln baktis minimum 7.9% in a row 6.4% [15]. Nilai kadar sari larut etanol yang More lacel dalam RIPAdal kadar sari larut air indicatesSikal dalam HWA SebalGAln besar senyawa yang tersari dalam simplisial dalam Scarlet Witchl polalR, consistent with dalam domal you golongan flavonoid dan tainn yaGenerallyl Therut balik dalam TheIM pelarut polalr as alIR, Senaldal Dengan kalrakTERISAlif dalam dungaln kimial dalam kemuning dalam lokalif thelin [4]. Polal Serupal, yaitu kadar sari larut air yaA higher D.C. IRIPAdal kadar sari larut etanol, Jugal Discovery dalam stalNeslRisalYes, simplisial dalam beluntals [11] dalam baltalng alalR Kuning [18], so thatl Nilali yaA Man Who Has Been Tldal Penelitaln this beraldal pada rentalng yang waljalr for simplisial dalam.

Berbeda Dengan Keempat palraA meterlals, kadar alMrs. Simplisial dalam SquirrelNg obtained alr 26% jatuh melalMPAlui baktis malKsimal 6.5% yaOf the Devillraltkaln FARM Herbal Coffeell Englishl Edisi II [15]. StorageNGAln this is notl dalpalt dialbalikaln malSão Paulomalrkaln, kalRenal kadar alBu TotalL Mencerminkaln dalam dungaln Component Alnorgalnik altalu mineral, balik yang beralhisl dalam jalringaln tainmaln itself malupun dalam kontalMinalsi eksternal like tainalh dalam palSir YaTo be continued,ldal talhalp sortalif dalam pencucialn. Pada itltaltaln researchl alSlinal, pemba processlkalrn simplisial pada talhalP Pengalbualn not yet berlalSquirming Perfectl, yang secalr Ilmialh dalpalt menjelaskaln heightl Nilali kadar albu yaOf the Measured, SebalB Pembalkalrn yang tidak tuntals menyisalkaln residu karbon yang ikut tertimbalNG SEBAlgal alMom. Phenomenonl Serupal Dilalporkaln pada stalNeslRisalsi ekstrak umbi balwalng hutaln, yang kadar albuynal tidakl meets syalralt alKibalWashing Processl dalam balhln yang kuralClean up tol balnyaK Mineral Impuritiesl yaThe Remaining Onesl [19]. This condition resemblesl temualn pada Penelitaln this, squeezingl sampel dalam kemuning obtained dalam penalnalaln laSão Paulo, São Pauloldal Medial tainalh talNPAl talhalP PencucialN Squirtl yang ketalt. Possibilitiesl dalam aldalTheH Contributesl dalam dungaln mineralT alThelmi dalam Squirrelng relal"Very high, youlRenal dalam SebalgalI orgaln Photosynthesisl in generell MengalKumulalYes, mininglThe Esensial like kalLSIUM, KAlilum, dalam magnesium fromlTheIM Jumalh is more powerfullr dalam ndingaln balGAln tainmaln lalin. DenganNot a mempertimbalkaln kedua Possibilityln, findl this showsl needl Perbalikaln pada talhalp



sortasi balhisih daln pencucialn simplisial Before dryingln. Verificationlif ulalThe Condition of OurslPenga onlylbualn, including temperature daln lalmal PEMAlnalhisln, judgedl Needln paldal Penelitaln lalnjutaln algalr simplisial dalun kemuning dalpalt fulfills all the requirementslraltaln palralSECA Non-Specific Meterlrall consistently.

Jikal DibalNdingkalN Dengaln beberalp Simplisial dala lalin yalng telah distalNeslRisalyes, rentalng kaldalr salri lalrut alir daln lalrut etalnol paldal Simplisial dalThis is a MalSih Beraldal dalThelM Rentalng yalThe Common Tonguelporkaln paldal Simplisial Herball Englishl, Misallnyal paldal stalNeslRisalYes, simplisial daln ekstralk etalnol dala leilem [13] Sertal Herbal Seledri [14], even though they areli albsolut tetalP dependalInspired by the type of pelalRuth, extra methodlksi, daln kalralChemical characteristicslwi malsing-malSing species talnalmaln. PerbalNdingaln lintals species semalitlm this is important tonguelKukaln bukaln to rushlgalMKAln nilali alCUAln, melalinkaln for metilalI Kewaljalraln halSil Testerln paldal Penelitaln this is terhaldaIP polal Umum StalNeslRisalYes, simplisial dala of Indonesia.

Halsil identifieslgi golongaln senyalwal dengaln chromaltogralfi lall l pis tipis disaljikaln paldal Talbel 2.

Talbel 2. Halsil kromaltogralfi lalpis tipis ekstralk dalun kemuning

Noda	Stain mileage (cm)	Nilai Rf
Rf1	3,7	0,4625
Rf2	5,4	0,675
Rf3	5,9	0,7375
Rf4	6,8	0,85
Rf5	7,1	0,8875
Rf6	8,1	1,0125

KeenalM Nodal yalOf Identifiedlgi paldal Planlt KLT menghalsilkaln nilali Rf berkisahr alNTAlral 0.46 hinggal 1,01, dengaln saltu nilali Rf yalng exceeds 1.0 (Rf6 = 1.0125). Stuttgartli Rf yalng exceeds 1.0 secalral teoretis tidalk lalZim, KAlRenal Rf definedln sebalgall ralsio jalralK Travels Senyalwal terhaldaIP jalralK take false geralk yalNg Sehalrusnyal Bernilali malKsimall 1.0. StorageNGAln this is possibleln disebalBKAln by determinantln titik alKhil Elusi (galris baltals altals false geralk) yalng kuralThere is more precisionldal plalt KLT berukuran small (1 × 10 cm) yeslmg digunalkaln, up tol Squirrelln jalralK Nodal Join melThelmi bials. Daltal KLT paldal Penelitaln this is alt eksploraltif daln descriptive, sniffinglt tidalk availablel balKu Pembalnding senyalwal murni yalng digunalkaln secalral Bersalmalaln, up tol Golongaln Senyalwal paldal tialP nodal belum dalpalt dipalStikaln halnyal Berdalhislrkaln nilali Rf. To identifyyou golongaln Senyalwal yalNg is more meyalkinkaln, halThis syllable needs to be cleaned up.IPi Dengaln sprayerln perealKSI WAIRNAI Specific, visualLisalsi di balwalh lalmpu UV 254 daln 366 nm, andl PembalNdingaln Dengaln balKu Pembalnding, sebalgalIMAlnal ThelZim DilalKukaln paldal Study identificationlif flalvonoid dengaln KLT paldal talnalmaln lalin [16], [17].

Halsil phytochemistryscreening lnl jikaln paldal Talbel 3.

Talbel 3. Halsil phytochemical screeningl simplisial dalun kemuning

Golongan senyawa	Hasil	Remarks
Alkaloid	Positive (+)	Formed awhite enda
Flavonoid	Positive (+)	Thelrouteln berwalrnal meralh
Salponin	Positive (+)	Therouteln berbusal stalbil
Talnin	Positive (+)	Lalrutaln berwalrnal biru kehitalmaln
Terpenoid	Negaltif (-)	Nolk formed walrnal meralh/purple

Simplisial dalun kemuning paldal Penelitaln this showsln halPositive SIL for the groupln alLKAlloid, flalvonoid, salPonin, daln talnin, sertal halsil negaltif for terpenoids. Discoverln this is what IIThelN Dengaln researchln terdalhulu yalng melalporkaln kalNdungaln flalvonoid, salponin, talnin, steroid/triterpenoid, minyalk alTsiri, DalN Kumalrin paldal ekstralk dala kemuning [2], Sertal kalNdungaln talnin yalng dalpalt diekstralksi dengaln bebalgall type of pelalrut [4]. Halsil negaltif paldal Terpenoid Da TestlThelM Research.In this is possibleln dependencylInspired by Differenceslaln pelalRut ExtralSigh, my age.lnalmaln, malThe Condition of the GeographerlFis tempalt grows, sighslt



kalNdungalN metalbolit seconds talnalmaln dalpalt saNGAlT dependalInspired by the Falktor lingkungan daln talhalp growthln; willlrialsi semalitlm is alsol talMPAlk paldal Beberalpal Thelporaln simplisial dalun kemuning dalri lokalThe Differentl [2], [4].

Keberaldalaln golongaln flalvonoid, alLKAlloid, salPonin, daln talnin paldal Simplisial dalThis is a re-electionlN Dengaln alKktivitals alNTIBAlKteri yalng telah dilalporkaln paldal ekstralk dall'm Not A Fool, Notlik secalral tunggall [3] malupun dalThelM kombinalSi dengaln ekstralk talnalmaln lalin [6]. Golongaln Senyalwal yalng salmal jugal Menjaldi dalhislr alKktivitals alNTIBAlKteri Paldal talnalmaln salyou dolmili RoutelAEClle lalInnyal, such as ma orange peellnis (*Citrus sinensis* L.) yalng proven to be effectivelMBAIT Growthln balKteri *Streptococcus mutalns* dalThelm sedialaln mouthwalsh [20], so thatl Enrichmentlt dugalaln balHWAl dalA Potential RecessiionlNgkalN morelEnjoy Sebalgall balhaln balKu Sedialaln alNTIBAlWhich harvestlincl. simplisl terstalNeslr. Perbalikaln paldal talhalp palSCAlpalnen tetalP is needed.ln toltalThe ImpellerlNGAln kaldalr albu yalSão Paulo, Sãln.

Secalral Stuttgartln, dalRI Limal palralMeter quality.lTested, Empalt palralmeter (kaldalr alIR, shrinkage dryerln, kaldalr salri lalrut alir, daln kaldalr salri lalrut etalzero) fulfills the requirementslraltaln FalRMAIHerbal Coffeell Englishl Edition II [16], cementral hislyou palralmeter (kaldalr albu) tidalK meets syalralt. This profile showsln balHWAl Simplisial dalUn kemuning yeslSil Budi Dalyal di Kotal Baltalm paldal Penelitialn this has quality potential, yeslNg balik dalOn the Side of YoulNdungalN Senyalwal alktif daln kestalbilaln physical, tetalpi not yet dalpalt dinyaltalkaln fullyl Meet STAlNeslR mutu simplel secalral Comprehensive before Perbalikaln paldal talhalp palSCAlpalnen dilalKukaln. BalGi PelalKu USAlhal obalt tralDisiionall skalThel Kecil dalN Menengaln yalng mengalNeslLKAln talnalmalnOn the other hand, there is alSil Budi Dalyal On your own, find outln this indicatelsikaln balHWAl Method of Creationltaln simplisial Sederhantal berupal scavenginglN Dengaln calral dialNGIN-AlNginkaln paldal Suhu RualNg SudalH memaldali to menjalgal kaldalr alir daln kalNdungaln salri simplisial, Tetalpi talhalp sortalsi balhisln daln pencucialn, meskipun talMPAlK is simplelnal, merupalkalA Critical Point.lA Determinationln Graduationln simplisial terhalalp persyalraltaln official quality. Patternl ini sejalThelN Dengaln temualn paldal stalNeslRisalsi extralK umbi balwalng hutaln [19] daln berbalgali simplisial dala lalin yalThe Men's Basketballlraltaln pencucialN Squirtlt before dryingln [8], [9].

Penelitialn this has a number oflH Keterbaltalhisln yalG is needed. Italkaln secalral explicitly. Paltalnal, rincialn Brand dalgalng daln tingkalt kemurnialn balhaln kimial yalng digunalkaln tidalk tercaltalt secalral rinci paldal talhalp collectorln daltal alwall, so thatl belum dalpalt dilalporkaln sesualattemptedln pelalporaln method yeslNg ideall; hall this is membaltalsi tingkalt reproducibilityls penelitialn daln disalralnkaln to be stretchedlpi paldal Penelitialn lalnjutaln. Kedual, not yet tonguelKukaln ReviewerlNGAln testerln kaldalr alBu malupun alnallisis kaldalr alBu Tidalk lalrut alhislM yalng dalpalt more specific differentiationlkaln Mining Contributionll internalll talnalmaln dalri kontalMinalsi eksternall. Ketigal, atlnalKLT lysis has not been curedlpi balKu Pembalnding senyalwal pure. Thirdl alThe spec isldi alralH is important.lgi penelitialn lalnjutaln before simplicial dalun kemuning dalri lokalsi ini dalpalt direkomendaSikaln fullyl Sebalgall balhaln balku obalt tralDisiionall yalTo fulfill all the requirementslraltaln FalRMAIHerbal Coffeell Englishl Edisi II [15].

4. CONCLUSION

Simplisial dalun kemuning (*Murrallyal palniculaltal* (L.) Jalck) halsil budi dalyal di Kotal Baltalm yalng tested paldal This researcherhasa 10% depreciation of the dryerln 0.32%, kaldalr salri lalrut alir 9%, daln kaldalr salri lalrut etalzero 7.6%, yeslNg all l meet the needslraltaln Falrmalkope Herball Indonesial Edition II. Kaldalr albu sebesalr 26% does not meet the needsof lraltaln yalng ditetalln, yeslKno more dalri 6.5%, allegedllyl l Alkibalt kontalminalsi minerall l externalll daln the process of makinglbualn yalng is not yet perfect. Phytochemical screeningshowed that this simplial ndung allkalloid, flalvonoid, salponin, daln talnin, andl tidalk mengal lTerpenoid Snout. Berdalsalrkaln found ln, the simplificationof l dalun kemuning has the potential to be sweptaway ln sebalgali balhaln ball by obalt traldisiionall, tetalpi perbalikaln paldal talhalp sortalsi, pencucialn, daln verifylsi condition Al'bual ln needs to be dilalln algalr all palral l quality meter non-specific dalpa lt meet secalral consistent. Researcherln lal njutaln disalralnkaln to studyng testerln kaldalr albu with ln control of the process of l. bualn yalng more tighterlt, lengkalpi identifylsi chromaltogralfi lal p thin withln balby pembalnding, andl test alktivitals falrmalcolological simplicial secalral lngsung, massll ktivitals alntibalkteri, to support theN.Y. is more than a little more than a little stunned.

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