SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCIÓN DE NUEVAS CREACIONES

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Abogado
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ASUNTO

Radicación	10 043 410
Trámite	002
Evento	001
Actuación	430
Oficio	- - 18322
Folios	12

Patente de Invención	☑		Patente de Modelo de Utilidad	☐
Vía Nacional	☐			
Vía PCT (Fase Nacional)	☑	Capítulo I ☐	Capítulo II	☑

No. Solicitud Internacional	PCT/US2008/078101
Fecha de Presentación Internacional	29/septiembre/2008

Como resultado del Examen de Fondo realizado, con fundamento en el Artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se comunica:

1. Documentos estudiados

Descripción:	Folios 10 a 70	14/Abril/2010
Reivindicaciones:	Folios 71 a 78	14/Abril/2010
Prioridad:	US 60 976 508	01/Octubre/2007

2. Análisis de la Prioridad

Se acepta la reivindicación de Prioridad porque:
Esta solicitud fue presentada dentro del plazo establecido (Art. 9 D 486).
Y su contenido técnico corresponde con el de la prioridad reivindicada.

3. Objeto de la invención

Título de la solicitud: "Composiciones bucales que contiene extractos botánicos" (folio 1).

El problema planteado en esta solicitud consiste en proveer composiciones bucales a partir de compuestos herbales.

Para resolver este problema técnico la solicitud en estudio proporciona una composición oral que incluye al menos dos ingredientes botánicos activos elegidos de una o más plantas.

El objeto de la presente Solicitud se relaciona con la Clasificación Internacional de Patentes (CIP): A61K 36/15 AC; A61P 31/2 AC;

4. No es una invención (Art 15 D 486 literales (a) – (f))

El objeto de las reivindicaciones 1 – 26 (parcialmente) no se considera una invención, de acuerdo con el Art citado.

Las composiciones no obedecen a invenciones debido a que es posible encontrar dos o más ingredientes activos en una misma planta, denominándose (extractos) lo cual no obedece a una invención sino a una extracción de material existente en la naturaleza. Vehículos, agentes modificadores de pH abrasivos, humectantes, son materiales que también se encuentran en la naturaleza. A menos que se definan las composiciones probadas y se permita un análisis de sus componentes como una composición de diferentes especies, que presente un real efecto y paso inventivo, lo reclamado no entra en el campo de una invención.

5. Excepción a la Patentabilidad (Art 20 D 486 literal d)

El objeto de las reivindicaciones 27 – 28 no es patentable de acuerdo con el Art citado.

Los métodos para promover y/o mantener un sistema de salud que comprenden aplicar a una persona en la cavidad bucal las composiciones reclamadas obedecen a un método de tratamiento y están exceptuadas de patentabilidad.

6. De la Solicitud de Patente

Reivindicaciones (Art 30 D 486, Art 22 PCT)

La reivindicación 1 no es clara ni concisa porque:

1. No presenta de forma clara qué se entiende por "ingredientes activos".
2. No presenta con claridad cuáles son las composiciones que reclama, ya que las caracteriza así: "...al menos dos ingredientes activos botánicos derivados de una o más plantas de los siguientes géneros... y un vehículo bucalmente aceptable para administrar una cantidad efectiva de al menos dos ingredientes activos *in vivo*."; como se puede observar no es posible determinar la composición se si se trata de
    a. composiciones que contienen al menos dos extractos de plantas

b. composiciones que contienen al menos dos "ingredientes activos" (entendidos como moléculas químicas) contenidos en los extractos de las plantas mencionados, o
c. composiciones que representan una mezcla de las anteriores opciones.

3. Reclama ingredientes activos orgánicos que pueden ser obtenidos de un grupo de 43 géneros de plantas diferentes. Por lo tanto, el alcance de la reivindicación principal se extiende sobre un número ilimitado de composiciones con posibles combinaciones entre dichos grupos.
4. Define el vehículo por su función para administra dos agentes activos para los cuales no es claro su son moléculas o extractos. La característica mencionada del vehículo oralmente aceptado obedece a un resultado a alcanzar y no define la invención de forma técnica. Adicionalmente no se entiende cual es dicha cantidad efectiva, ni cuál es el efecto técnico logrado.

La reivindicaciones 2, 3 y 4 no son claras ni concisas porque:

1. Mencionan grupos extensos e independientes entre sí de especies de plantas que aportarían en ingrediente activo orgánico a la composición, lo cual demuestra que los grupos no están relacionados entre sí.
2. Las reivindicaciones 2, 3 y 4 reclaman grupos de 67, 45 y 47 especies de plantas respectivamente. Lo anterior hace que la cantidad de composiciones probables aumente y que no tengan soporte en la descripción.

La reivindicación 5 no es concisa porque:

1. Caracteriza a la composición porque comprende un agente que aumenta la eficacia.

Las reivindicaciones 6 a 23 no son concisas porque:

1. Presentan composiciones que contienen ingredientes activos de determinadas especies y opcionalmente otros ingredientes activos orgánicos, lo cual aumenta el alcance de las composiciones y además al no estar relacionados entre sí le restan concisión a la materia reclamada.

La reivindicación 26 no es concisa porque:

1. Emplea el término "alrededor de" para definir la cantidad de ingrediente activo en la composición.

El capítulo reivindicatorio no es claro porque:

1- Los ingredientes activos de las composiciones no han sido definidos por sus características técnicas (moléculas) sino por origen a partir de los nombres de las plantas, se sugiere aclarar si lo que se pretende reclamar son los extractos de la plantas en una composición.
2- La expresión "... ingredientes activos botánicos derivados de una o más plantas..." es una extrapolación irrazonable de lo evaluado en la solicitud teniendo en cuenta que las moléculas activas en una planta pueden comprender proteínas, azúcares, lípidos, vitaminas, lipopolisacáridos, y un gran número de metabolitos no definidos ni evaluados por la solicitud.
3- De igual forma, la cantidad y estructura de compuestos químicos varía entre especies, género e incluso entre las familias vegetales.

4- Se recuerda al solicitante que se recomienda reclamar las composiciones por sus características estructurales y la proporción de estos en la composición reclamada. No se observan estas características en la presente solicitud.

El capítulo reivindicatorio no es conciso porque contiene un excesivo número de combinaciones posibles entre dos compuestos activos de una o más plantas de las reclamadas, no presenta su proporciones por lo que la materia reclamada es un elevado número de posibles combinaciones de "ingredientes activos" entendidos como sustancias extraídas de diferentes plantas y especies de los géneros mencionados lo cual hace difícil definir cuál es el objeto que se busca proteger.

Las Reivindicaciones 1 – 28 no son concisas, porque presentan una excesiva complejidad dada por la inespecificidad estructural de lo reclamado, seguida por su origen biológico y natural, lo cual dificulta determinar la extensión del objeto que se busca proteger.

Las Reivindicaciones 1 – 28 no están sustentadas en la Descripción porque cualquier ingrediente activo de la planta determinado como se observa en las reivindicaciones no ha sido mostrado en la descripción.

Descripción (Art 28 D 486)

La Descripción no es clara porque la información que contiene no permite que la persona versada en la materia pueda comprender el problema técnico y la solución aportada por la invención.

La Descripción no divulga la invención de manera suficientemente completa para que el la persona del oficio normalmente versada en la técnica pueda ejecutarla (ó reproducirla). Adicionalmente no aporta ningún dato que demuestre el efecto técnico de cualquiera de las composiciones reclamadas.

La solicitud no plantea una solución a un problema técnico real más allá del entendimiento de que las plantas tienen funcionalidad en la salud oral.

Así mismo, se observa que el término composiciones orales *in vivo* no fue explicado de una forma clara y por lo tanto no se comprende que tipo de composiciones se están aportando realmente al estado de la técnica.

Se requiere al Solicitante hacer las aclaraciones necesarias.

7. Unidad de invención (Art 25 D 486)

La Solicitud no cumple con el Requisito de Unidad de Invención porque se refiere a una cantidad indeterminada de Grupos Inventivos.

De la reivindicación 1 el número de grupos inventivos es muy alto porque la cantidad de combinaciones de dos "ingredientes activos" (entendidos como extractos) de los

43 géneros de las plantas mencionadas puede ser alrededor de 20.000 composiciones.

Sin embargo, del capítulo reivindicatorio se observan los siguientes grupos inventivos:

1. La composición caracterizada porque comprende *Curcuma longa*, Cuminim cyminum *y* tetrahidrocurcuminoide (Reivindicacion 7 y 8)
2. La composición caracterizada porque comprende *Romais officinalis, Origanum vulgare L, Camellia sinensis* y una fuente de iones estaño. (Reivindicación 9)
3. La composición caracterizada porque comprende *Pinus Pinaster* y picnogenol.(Reivindicación 10)
4. La composición caracterizada porque al menos uno de los dos ingredientes es *Petroselinum crispus.* (Reivindicación 11)
5. La composición caracterizada porque al menos uno de los dos ingredientes es *Romains officinalis L.* (Reivindicación 12)
6. La composición caracterizada porque al menos uno de los dos ingredientes es *Salvadora Pérsica* (Reivindicación 13)
7. La composición caracterizada porque al menos uno de los dos ingredientes es *Paullinia cupana* (Reivindicación 14)
8. La composición caracterizada porque al menos uno de los dos ingredientes es *Calendula* o *Tagetes* (Reivindicación 15)
9. La composición caracterizada porque al menos uno de los dos ingredientes es *Boswellia* Y ácido acetil ceto beta boswelico (AKBBA) (Reivindicación 16)
10. La composición caracterizada porque al menos uno de los dos ingredientes es *Sambucus racemosa, Origanum vulgare O Margnolia officinalis* (Reivindicación 17)
11. La composición caracterizada porque al menos uno de los dos ingredientes es *Copaifera langsdorfii* (Reivindicación 18)
12. La composición caracterizada porque al menos uno de los dos ingredientes es *Sophora flavescens* y qurarinona (Reivindicación 19)
13. La composición caracterizada porque al menos uno de los dos ingredientes es *Scuterllaria baicalensis, Romains officinalis, Magnolia officinalis, Camelia sinensis* y una fuente de iones de estaño (Reivindicación 21)
14. La composición caracterizada porque al menos uno de los dos ingredientes es *Piper betle, Syzygium aromaticum, Commiphora myrrha y/o Juglans regia* (Reivindicación 22)

Se sugiere presentar las Solicitudes Divisionales que considere necesarias, ó limitar la solicitud inicial a una sola invención, eliminando de ella las otras invenciones.

8. Determinación del Estado de la Técnica

El Estado de la Técnica se determinó con base en la
Fecha de Presentación de la Solicitud de Prioridad: Octubre 01 de 2007, ó

y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

Item	Documento	Título	Fecha de Publicación*
D1	US 4'427.681	Red Herbal Dentifrice	24/05/2007
D2	Ozaki et al	Efficacy of a herbal toothpaste on patients with estabilished gingivitis	2006

D1 http://www.google.com/patents?id=a2KiAAAAEBAJ&printsec=abstract&zoom=4&hl=es#v=onepage&q&f=false divulga composiciones de dentífrico que preferiblemente (ver párrafo 0015) contienen una pluralidad de agentes y extractos botánicos seleccionados (ver párrafos 0018- 0085)

D2 http://www.scielo.br/scielo.php?pid=S1806-83242006000200015&script=sci_abstract divulga (página 36, renglones 95 – 99, folio 85) la eficacia de un dentífrico herbal en la reducción de placa y gingivitis con preparaciones botánicas.

9. **Examen de Patentabilidad** (Art 14 D486)

Novedad (Art 16 D486)

La reivindicación 1 consiste en una composición que comprende al menos dos ingredientes activos botánicos derivados de una o más plantas de los siguientes géneros: *Origanum, Thymus, Lavandula, Salvia, Melissa, Cumium, Petroselinum, Calendula, Tagetes, Boswellia, Sambucus, Copaifera, Curcuma, Allium, Simphytum, Punica, Euterpe, Sophora, Rheum, Fagopyrum, Camellia, Coptis, hydrastis, Mahonia, Phellodendron, Berberis, Xanthorhiza, Lonicera, Vaccinium, Cinnamomum, Vitis, Terminalia, Pinus, Albizia, Melia Salvadora, Paullinia, Piper, Syzygium, Commiphora, Juglans, Scutellaria,* y *Magnolia*, y un vehículo para entregar una cantidad efectiva de al menos dos ingredientes activos in vitro.

Las características **esenciales** de la composición de la reivindicación 1 han sido divulgadas previamente en D1, el cual enseña, composiciones que pueden tener múltiples agentes y extractos en la composiciones (párrafo 0017) obtenidos a partir de agentes botánicos ilustrados en los párrafos 0018 a 0085 entre los que se encuentran aquellos enseñados en la reivindicación 1 de la presente solicitud.

En consecuencia, la reivindicación 1 carece de novedad, según lo divulgado en el documento D1.

Las reivindicaciones dependientes 2 – 28 presentan un espectro tan amplio que no mencionan alguna característica que haga nueva a la composición de la reivindicación 1, por lo cual se considera que no son nuevas.

Nivel Inventivo (Art18 D486)

La reivindicación 1 cubre un espectro tan amplio que solo obedece a condiciones en las que al menos dos ingredientes son definidos de una o más plantas seleccionadas de una larga lista de plantas conocidas. Es de notar además que las composiciones no se limitan a compuestos orales (dentífricos) sino además tes herbales, pastillas bucales, etc.

Una persona medianamente versada en la materia con el conocimiento de que las plantas son de interés para una gran cantidad de propósitos, fácilmente sugeriría alternativas para aquellos dentífricos descritos en D1 y D2.

Esto no requiere altura inventiva ya que solo la mención de un número de plantas con actividad biológica efectiva provee la información necesaria para que un técnico medio realice cualquiera de las múltiples composiciones reclamadas.

Por otra parte, la solicitud no provee un solo ejemplo, ni una sola prueba de soporte sobre actividad medica de alguna composición desarrollada. De esta forma el solicitante no ha realizado ningun salto cuantitativo o cualitativo sobre el estado de la técnica.

Las composiciones reclamadas solo pueden considerarse sugerencias para futuros proyectos donde fuera necesario evaluar algunas de las múltiples composiciones para evaluar si existe un efecto sinérgico o sorprendente además del conocido y el aditivo.

Debido a que las reivindicaciones presentan un espectro de cobertura tan amplio sobre la selección de una larga lista, sin información de soporte, no se puede reconocer el nivel inventivo sobre el arte previo y las variantes rutinarias realizadas por cualquier técnico medio versado en la materia.

10. Conclusión

Los requisitos de Patentabilidad de la presente Solicitud están afectados así:

Item	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	US 4'427.681	1 – 28	Novedad Nivel Inventivo
D2	Ozaki et al	1 – 28	Novedad Nivel Inventivo

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única No. 10 de 2001.

JOSÉ LUIS SALAZAR LÓPEZ
Director de Nuevas Creaciones (C)

El anterior requerimiento fue notificado por fijación en lista, de fecha 16 OCT. 2012

Elaboró: María Alejandra Sánchez Melo
Revisó: Consuelo Leguizamón

Expediente 10 043 410 1er Art 45

Braz Oral Res
2006;20(2):172-7

Periodontology

Efficacy of a herbal toothpaste on patients with established gingivitis – a randomized controlled trial

Eficácia de um dentifrício fitoterápico em pacientes com gengivite estabelecida – ensaio clínico aleatório

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ABSTRACT: The aim of this randomised, double blind controlled trial was to verify the efficacy of a herbal dentifrice on the reduction of plaque and gingivitis. Forty eight volunteers with established gingivitis were randomly assigned to either a test group (herbal dentifrice) or positive control group (dentifrice with triclosan and fluoride). The dentifrices were distributed in plain white tubes by an independent pharmacy, which revealed the contents of each tube only after the experimental period. Plaque and gingivitis assessments were carried out on baseline and after 28 days of product use. All examinations were conducted by the same calibrated investigator. Subjects were instructed to brush their teeth three times daily using their assigned dentifrice for 28 days. There was a significant reduction in plaque levels in both the test and control groups. However, there was no significant difference between the groups. A significant reduction in gingivitis was observed in both groups, although there was no significant difference between them. No adverse reactions were reported. The authors concluded that both dentifrices were effective in reducing plaque and gingivitis in subjects with established gingivitis.

DESCRIPTORS: Gingivitis; Plant preparations; Phytotherapy; Triclosan.

RESUMO: O objetivo deste ensaio clínico aleatório duplo-cego foi verificar a eficácia de um dentifrício fitoterápico na redução de placa e gengivite. Quarenta e oito voluntários com gengivite estabelecida foram aleatoriamente alocados aos grupos teste (dentifrício fitoterápico) e controle positivo (dentifrício com triclosan e flúor). Os dentifrícios foram distribuídos em tubos brancos por uma farmácia independente, que revelou o conteúdo de cada tubo apenas após o final do período experimental. A aferição de placa e gengivite foi conduzida por um único examinador, previamente calibrado, no início e após 28 dias de uso do produto. Os sujeitos da pesquisa foram orientados a escovar os dentes com o dentifrício de seu grupo três vezes ao dia, por 28 dias. Houve redução significativa na quantidade de placa nos grupos teste e controle. No entanto, não houve diferença significativa entre os grupos. Os dois grupos experimentais apresentaram redução significativa nos níveis de gengivite, porém não houve diferença significativa entre eles. Não foram observadas reações adversas. Os autores concluíram que os dois dentifrícios foram eficazes na redução de placa e gengivite em indivíduos com gengivite estabelecida.

DESCRITORES: Gengivite; Preparações de plantas, Fitoterapia; Triclosan.

INTRODUCTION

Self-performed mechanical plaque removal is an unquestioned method of controlling plaque and gingivitis[4,8,14]. However, toothbrushing and flossing are difficult tasks, and most of the patients are not able to completely remove plaque in all teeth surfaces[11]. Mechanical plaque control is also time-consuming, and some individuals may lack motivation for these procedures. In an effort to

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Ozaki F, Pannuti CM, Imbronito AV, Pessotti W, Saraiva L, Freitas NM, Ferrari G, Cabral VN. Efficacy of a herbal toothpaste on patients with established gingivitis – a randomized controlled trial. Braz Oral Res 2006;20(2):172-7.

improve the efficacy of mechanical tooth-cleaning procedures, antimicrobial agents have been added to dentifrices[2,7].

One of the most effective agents for supragingival plaque control is chlorhexidine[1,7,10]. However, a significant reduction of its antiplaque potential may be observed when it is used in a toothpaste preparation[3]. Triclosan has also been incorporated into dentifrices, and some studies have demonstrated a significant reduction of plaque and gingivitis[9,15].

Interest in alternative mouthrinses and toothpastes based on plant extracts has increased recently. Among these herbal products, Parodontax® (GlaxoSmithKline, Middlesex, United Kingdom) has received great attention. It is composed of sodium bicarbonate, sodium fluoride (1,400 ppm) and herbal ingredients: chamomile, which is supposed to have anti-inflammatory properties and to decrease gingival inflammation; echinacea, which is reputed to stimulate the immune response; sage and rhatany, which have anti-hemorrhagic properties; myrrh, claimed to be a natural anti-septic; and peppermint oil, which has analgesic, anti-septic and anti-inflammatory properties.

Some studies have reported that Parodontax® is able to significantly decrease plaque and gingivitis[24,25], while other publications showed no effectiveness of the dentifrice when compared to a control[16,18,20].

In many trials, study subjects receive dental prophylaxis and oral hygiene instructions prior to the commencement of the experiment. However, for the majority of the population, plaque removal is unsupervised, which leads to high scores of plaque accumulation and gingivitis. For a clearly evident effect of an antimicrobial agent to be proven, it should be demonstrated on established gingivitis subjects, which are representative of the vast majority of dentifrice users.

The aim of this study was to evaluate the efficacy of the Parodontax® dentifrice in the reduction of plaque and gingivitis in subjects with established gingivitis.

MATERIALS AND METHODS

Volunteers for this study were recruited in the Dental Clinic at the Associação Paulista de Cirurgiões Dentistas, in São Caetano (Brazil). They were admitted to the study if they met the following eligibility criteria: age ≥ 18 years, a minimum of 15 teeth, good general health, a baseline Plaque Score mean > 1.5 (Quigley, Hein[19], 1962 as modified by Turesky *et al.*[23], 1970) and presence of established gingivitis. Established gingivitis was defined as a baseline Löe, Silness[14] (1963) Gingival Index mean > 1.0. The plaque score mean and the Gingival index mean were based on inclusion criteria used by Binney *et al.*[6] (1996) and Owens *et al.*[17] (1997). Exclusion criteria were: presence of advanced periodontal disease, which was defined as presence of CPITN code 4 teeth[3], use of orthodontic appliances, use of antibiotics in the previous 3 months, continuous use of mouthrinses containing chemical agents in the previous 3 months, and a history of allergy to toothpastes or Parodontax.

Initially, 48 healthy subjects (20 males and 28 females), ranging in age from 18-69 years (mean age 33.19 ± 13.57) were considered eligible for the study. All subjects were given oral and written information about the study, and before entering the study, they signed a written informed consent. The study protocol was approved by the Ethics Committee of the Ibirapuera University. All procedures in this experiment were performed according to the ethical principles established by the Declaration of Helsinki.

The study was designed as a randomised, double blinded, parallel arm controlled trial. The subjects were randomly assigned to either the test or positive control group. The random allocation sequence was generated by one of the authors (C.M.P.), who used a random-number table. The random allocation sequence was concealed from the main investigator (F.O.) until the dentifrices were assigned to the participants. The main investigator was responsible for enrolling the subjects and assessing the study variables. Blinding and allocation concealment were controlled by the independent Pharmacy "Fórmula e Ação", which distributed the toothpastes in plain white tubes, identified as "group A" and "group B" tubes. All investigators and study subjects were unaware of the contents of each tube. The pharmacy revealed the contents of each tube only after the experimental period was over.

Volunteers in the test group received a toothpaste tube containing 90 g of Parodontax® dentifrice (GlaxoSmithKline, Middlesex, United Kingdom) containing sodium bicarbonate, sodium fluoride 1,400 ppm, chamomile, echinacea, sage, rhatany, myrrh and peppermint oil. Subjects in the control group received a toothpaste tube containing 90 g of Colgate Total (Colgate-Palmolive Company, New York, United States of America), containing

0.3% triclosan, 2% copolymer and 0.243% sodium fluoride. The control dentifrice was modified by "Fórmula e Ação" Pharmacy, to have its colour and taste similar to the Parodontax dentifrice.

No prophylaxis was undertaken prior to commencement of the study, and no attempt was made to modify the volunteers' oral hygiene habits. All participants used dental floss during the study. At baseline, the amount of plaque and gingival inflammation was measured on all teeth, at the buccal, mesial, distal and lingual aspects, with the exception of the third molars. The participants were stained for plaque using an erythrosine disclosing solution and cotton swabs. The amount of plaque was scored using the Turesky[23] (1970) modification of the Quigley, Hein[19] (1962) index. After that, gingival inflammation was recorded using the Gingival Index (GI)[13]. All measurements were conducted by the main investigator (F.O.), who was previously calibrated. For calibration, two measurements were performed with one-hour interval. Intra-examiner calibration was performed in 5 patients until an 80% agreement was obtained.

After scoring plaque and gingival inflammation, the subjects were instructed to brush with the assigned toothpaste 3 times a day. Rinsing with water after toothbrushing was not allowed, as well as using any other toothpaste or mouthrinse during the experimental period.

After 28 days, the subjects returned for another appointment, in which the amounts of plaque and gingival inflammation were scored again by the same investigator. To check for compliance, the participants were asked to return their assigned tubes, so that the investigators could verify the amount of dentifrice that was used. Volunteers were also asked about adverse events, such as taste disturbance, mucosal sensitivity etc.

Statistical analysis was performed using a statistics package (SPSS 11.0 for Windows). The subject was the unit of analysis. Plaque scores and Gingival Index scores were averaged on a per-subject basis. Each participant had a whole-mouth average score for baseline and another for the 28-day exam, presented separately for buccal/lingual aspects and mesial/distal aspects. The distribution of the variables was not normal, so group means were compared using the Mann-Whitney U test. Differences between baseline and the 28-day exam were evaluated using the Wilcoxon test. Groups were also compared regarding age by means of the Student's t test, and association between group and sex was verified by means of the chi-square test. All statistical tests employed a level of significance of $\alpha = 0.05$.

RESULTS

Forty-two (16 males and 26 females) of the initial 48 subjects completed the 28-days study period. There were six dropouts throughout the trial. Four individuals were contacted but declared they were "too busy" or "didn't have time" to come to the 28-day exam. They were examined and received a prophylaxis one or two weeks later, but data pertaining to these patients was not used in the statistical analysis. Two individuals declared they did not have interest in another appointment because they "have already received a dental prophylaxis".

The mean age in the test group (n = 20) was 31.55 ± 14.6, and in the control group (n = 22) was 34.68 ± 12.73. There was no significant difference between groups according to age (p = 0.46), and there was no significant association between group and sex (p = 0.23), which means that both groups were homogeneous.

At baseline, there was no significant difference in Plaque Scores between the two groups. After 28 days, the test group presented an average 19.9% reduction in plaque at the buccal and lingual surfaces, whereas the control group showed an 18.3% reduction (Table 1). At the proximal surfaces, a

TABLE 1 - Mean, median and comparison between groups according to the Plaque Index at buccal and lingual aspects.

		Baseline	28 days	p (W)
Herbal toothpaste N = 20	Mean ± SD	2.11 ± 0.68	1.69 ± 0.64	0.033*
	Median	2.03	1.69	
Positive control N = 22	Mean ± SD	2.13 ± 0.60	1.74 ± 0.60	0.001*
	Median	2.08	1.65	
	p (MW)	0.93	0.60	

*Significant at the 5% level; W = Wilcoxon test; MW = Mann-Whitney test.

Ozaki F, Pannuti CM, Imbronito AV, Pessotti W, Saraiva L, Freitas NM, Ferrari G, Cabral VN. Efficacy of a herbal toothpaste on patients with established gingivitis – a randomized controlled trial. Braz Oral Res 2006;20(2):172-7.

reduction of 19.6% and 15.4% was observed for test and control groups, respectively (Table 2). Both dentifrices produced a significant reduction in plaque scores. However, the difference between the groups was not statistically significant.

There was no significant difference in the Gingival Index between the groups at baseline. After 28 days, a mean 28.4% and 36.3% reduction in GI was observed in the test and control groups, respectively, at the buccal and lingual surfaces (Table 3). At the proximal surfaces, a decrease of 23.5% was observed in the test group, and a 32.5% reduction occurred in the control group (Table 4). In both groups a significant decrease in mean GI was observed, although there was no significant difference between the groups.

No adverse reactions were observed during the trial. None of the volunteers reported any serious reaction or discomfort related to the toothpastes.

DISCUSSION

Lately, there has been growing interest in natural products. Even though studies in animals and *in vitro* may show the antimicrobial properties of several of these products, there is no other way of knowing their real clinical effect without conducting a randomized clinical trial. Detergents and abrasives may alter the substantivity or the antimicrobial activity of active ingredients. The principal ingredients of Parodontax (chamomile, echinacea, sage, rhatany, myrrh and peppermint oil) have several medicinal properties. However, data pertaining to the substantivity of these products cannot be found in literature. It is important that clinical tri-

TABLE 2 - Mean, median and comparison between groups according to the Plaque Index at mesial and distal aspects.

		Baseline	28 days	p (W)
Herbal toothpaste N = 20	Mean ± SD	2.44 ± 0.69	1.96 ± 0.53	0.018*
	Median	2.56	2.01	
Positive control N = 22	Mean ± SD	2.40 ± 0.59	2.03 ± 0.55	0.002*
	Median	2.47	1.94	
	p (MW)	0.85	0.66	

*Significant at the 5% level; W = Wilcoxon test; MW = Mann-Whitney test

TABLE 3 - Mean, median and comparison between groups according to the Gingival Index at buccal and lingual aspects.

		Baseline	28 days	p (W)
Herbal toothpaste N = 20	Mean ± SD	1.02 ± 0.25	0.73 ± 0.37	0.012*
	Median	1.01	0.67	
Positive control N = 22	Mean ± SD	1.02 ± 0.28	0.65 ± 0.28	0.001*
	Median	1.03	0.62	
	p (MW)	0.94	0.45	

*Significant at the 5% level; W = Wilcoxon test; MW = Mann-Whitney test.

TABLE 4 - Mean, median and comparison between groups according to the Gingival Index at mesial and distal aspects.

		Baseline	28 days	p (W)
Herbal toothpaste N = 20	Mean ± SD	1.19 ± 0.27	0.91 ± 0.34	0.009*
	Median	1.18	0.89	
Positive control N = 22	Mean ± SD	1.20 ± 0.28	0.81 ± 0.25	0.001*
	Median	1.15	0.83	
	p (MW)	0.92	0.26	

*Significant at the 5% level; W = Wilcoxon test, MW = Mann-Whitney test.

als verify the efficacy of any new product, instead of simply assuming that the product is efficient based on laboratory studies.

In a previous study[18], Parodontax® was unable to promote a significant reduction in PI and GI when compared to a standard dentifrice containing only fluoride. One possible reason for the conflicting results obtained by either study is the population participating in each study. In the first experiment, the sample was composed of Dentistry students, who presented low PI and GI scores at baseline, which would have lessened the impact of any chemical agent on the levels of plaque and gingivitis. Comparatively, in the present study, all volunteers enrolled in the study started out with a large amount of established plaque and gingivitis. Prophylaxis and scaling were not carried out previous to the experimental phase, as in the studies by Lindhe *et al.*[12] (1993), Triratana *et al.*[22] (1993) and Triratana *et al.*[21] (2002). The association of toothbrushing and the test dentifrice promoted reductions of 19% in the Plaque Index and 23-28% in the Gingival Index, while Triratana *et al.*[21] (2002) observed reductions of 39.9% in PI and 25.7% in GI. Lindhe *et al.*[12] (1993) observed an increase in the number of sites presenting a plaque score of 0 (plaque-free surfaces) from 12% at baseline to 35% at the end of the trial, and a mean reduction in GI from 1.3 to 1.1.

Our results showed that there was no additional benefit of the test dentifrice over the positive control toothpaste (Colgate Total®). Nevertheless, these results don't mean that the test dentifrice has not been efficient. The Parodontax group showed a significant decrease in Plaque Index and in the Gingival index. The reductions in both indices were significant when compared to baseline values. Moreover, the product was compared with a dentifrice containing triclosan, which is an antimicrobial agent whose safety and efficacy have been well established[9]. It can be inferred, by our results, that the herbal dentifrice was as efficacious as the one with triclosan, and may be an alternative for people interested in natural products.

CONCLUSION

The authors conclude that both dentifrices were able to reduce plaque and gingivitis, although no additional benefit of the test dentifrice over the positive control toothpaste could be observed.

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