

**Title: Innovative process of a food supplement made from oregano bagasse.
“NUTRIOREG”**

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Holdings

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Peru	Paraguay	Nicaragua

Introduction

The South Central Region of Chihuahua is a highly agricultural and livestock area. It has 41,900 hectares of non-timber forest resource (oregano) (Alarcón, 2005)

which is processed and generates waste up to 1,470.17 tons per season cycle, which do not take advantage of its economic and nutritional benefit

With the oregano bagasse a total of 36,754 bags of 40 kg of NUTRIOREF will be obtained.



Centro de Investigación en
Alimentación y Desarrollo



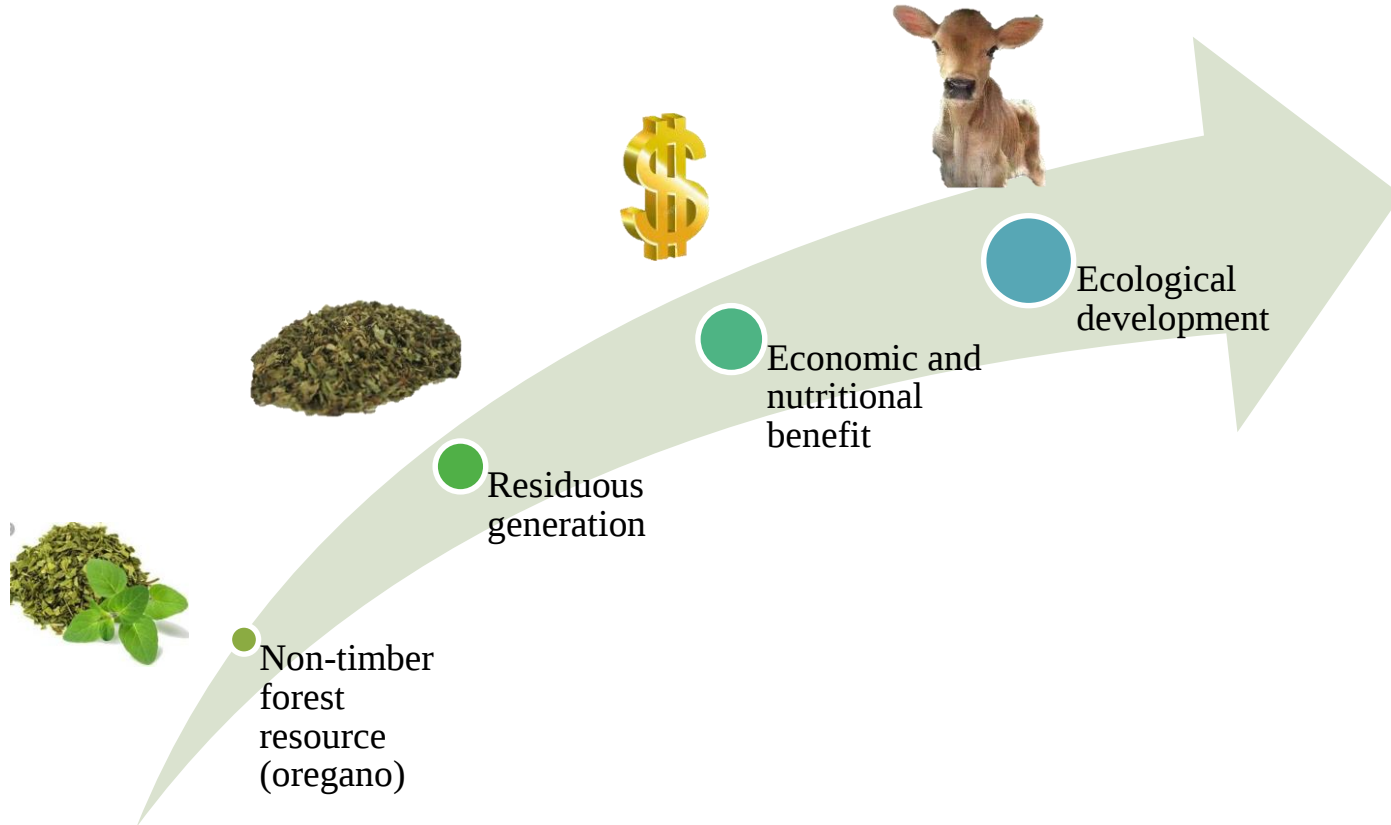
Technical
scientific test were
performed in the
Centro de
Investigación en
Alimentación y
Desarrollo A.C. of
Delicias and
Hermosillo, Sonora
(CIAD), attached to
CONACYT

Lab show that the
bagasse has a 6.69%
of raw fat, 11.19%
of fiber and 16.44%
of protein; likewise,
it has 308.77
kilocalories of
caloric intake and a
total of 45.7% carbs,
in other words, this
is established as
optimal necessary
nutrition to feed the
livestock.

In the region of
Delicias, there is a
presence of 257
potential clients
according to
SAGARPA
(2017), which are
dedicated to the
cattle raising and
will be the main
client

Problem Statement

The South Central Región of Chihuahua is a highly agricultural and livestock area.



State of the art



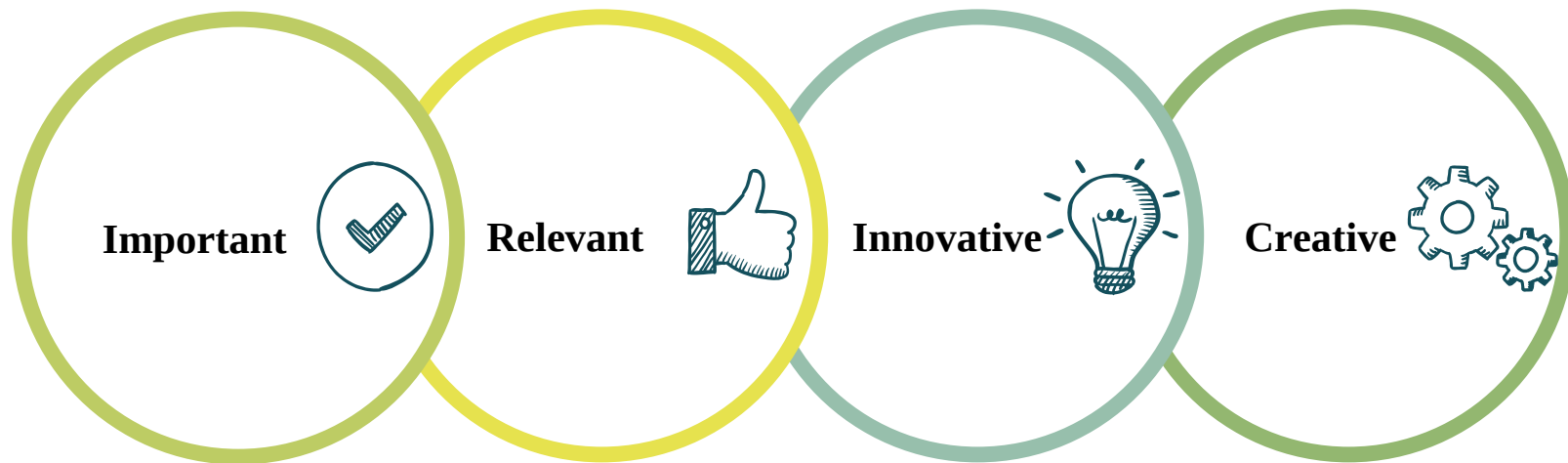
**State of
Chihuahua**

It has with
908 agrarian
nuclei and 72
rural
communities.



SAGARPA
SECRETARÍA DE AGRICULTURA
GANADERÍA, DESARROLLO RURAL,
PESCA Y ALIMENTACIÓN

**There are
257 potential
clients
acording
SAGARPA
(2017)**



Description and benefits of the innovation



DR





Lower costs



Value proposition and impact in the strategic sector



**Agroindustrial
sector**



**Economic
contribution
to the region**



**Provides
livestock with
more nutrients
and more
production**

**Potential
market**



**Target
Market**



Competence



Financial Plan

Total Initial Investment	
Current investment	\$349,752
Fixed investment	\$1,244,926
Deferred investment	\$30,500
Total	\$1,625,178

Initial Investment: \$1,625,178

Equity financing	\$731,330.10
Debt financing	\$893,847.90

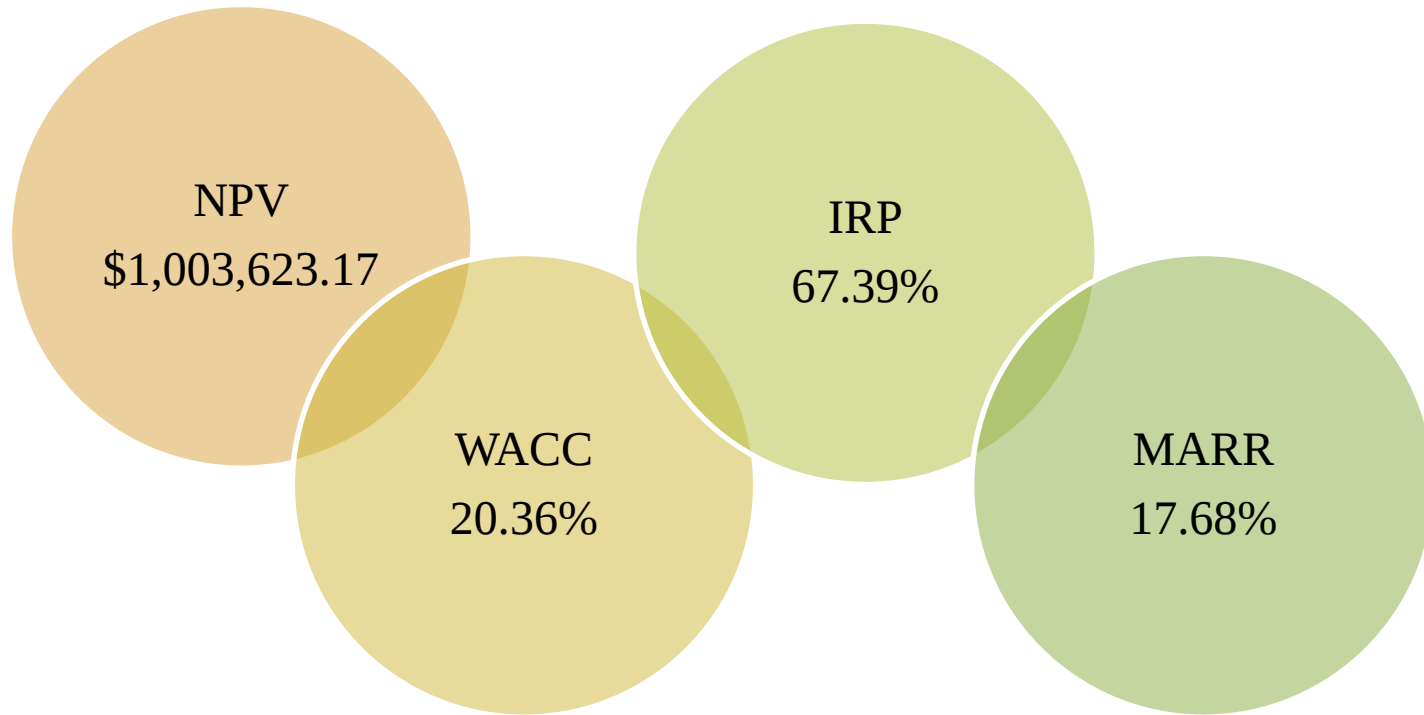


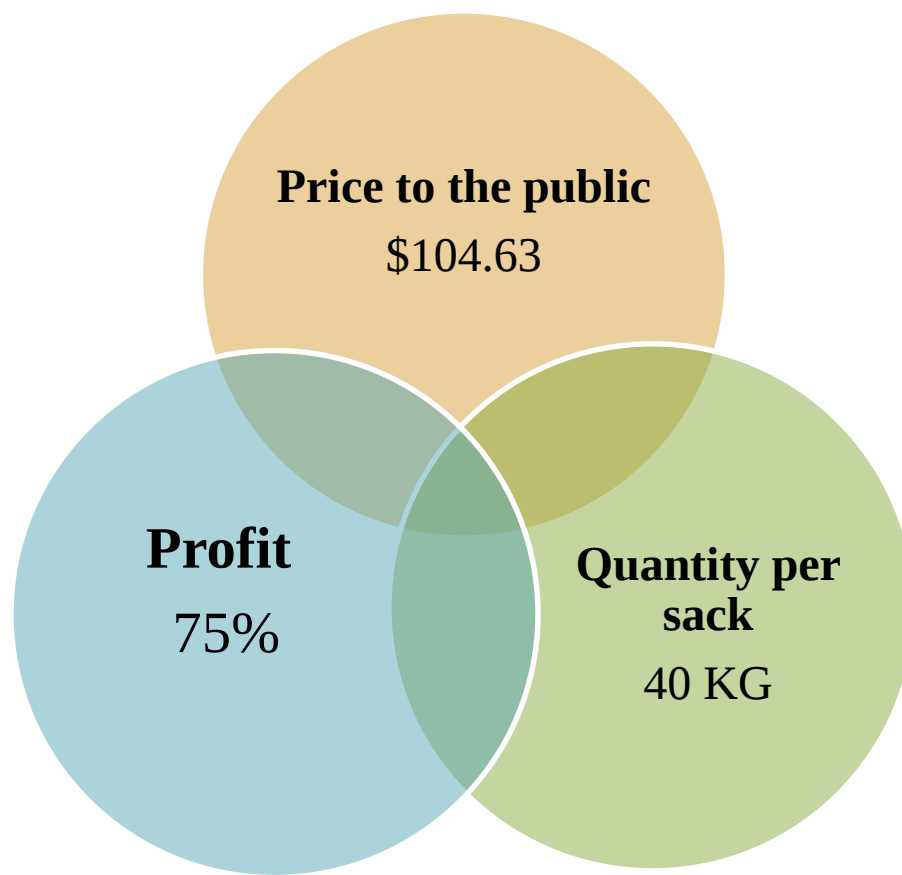
Year 1= \$2,809,852.55

PROFORMA BALANCE SHEET YEAR1			
CURRENT			
ASSETS			
Cash	\$ 2,403,686.22		
TOTAL CURRENTS ASSETS		\$ 2,403,686.22	
FIXED ASSETS			
Furniture equipment	\$3,558		
vehicles	\$ 78,900.00		
Machinery and equipment	\$ 234,750.00		
Computer equipment	\$ 6,470.00		
Accumuladed Depreciation	\$ 33,974.96		
TOTAL FIXED ASSETS		\$ 289,703.04	
DEFERRED ASSETS			
Installation costs	\$ 39,500.00		
Accumuladed amortization	\$ 3,950.00		
Deed expenses	\$ 8,000.00		
Prepaid rents	\$ 12,000.00		
Prepaid interest	\$ 60,913.29		
TOTAL DEFERRED ASSETS		\$ 116,463.29	
TOTAL ASSETS			\$ 2,809,852.55
CURRENT			
LIABILITES			
Taxes payable.	\$ 403,640.69		
FIXES LIABILITES			
Long-term debt		\$ 217,991.04	
TOTAL LIABILITES			\$ 621,631.73
STOCKHOLDERS EQUITY			
Capital stock		\$ 438,602.40	
Net profit for the year.		\$ 1,749,618.42	\$ 1,188,220.82
TOTAL LIABILITES+ASSETS			\$2,809,852.55

Year 5= \$5,018,293.21

PROFORMA BALANCE SHEET YEAR 5			
CURRENT			
ASSETS			
Cash	\$ 4,855,651.71		
TOTAL CURRENTS ASSETS		\$ 4,855,651.71	
FIXED ASSETS			
Furniture equipment	\$ 2,134.80		
Vehicles	\$ -		
Machinery and equipment	\$ 140,850.00		
Computer equipment	\$ -		
Accumuladed Depreciation	\$ 12,093.30		
TOTAL FIXED ASSETS		\$ 130,891.50	
DEFERRED ASSETS			
Installation costs	\$ 23,700.00		
Acumuladed Amortization	\$ 3,950.00		
Prepaid rents	\$ 12,000.00		
Prepaid interest	\$ -		
TOTAL DEFERRED ASSETS		\$ 31,750.00	
TOTAL ASSETS			\$ 5,018,293.21
CURRENT			
LIABILITES			
Taxes payable	\$ 721,424.40		
FIXES LIABILITES			
Long-term debt	-		
TOTAL LIABILITES			\$ 721,424.40
STOCKHOLDERS EQUITY			
Capital stock		\$ 438,602.40	
Net profit for the year		\$ 881,740.93	
Reained earnings		\$ 2,976,525.48	\$ 4,296,868.81
TOTAL LIABILITES+ASSETS			\$5,018,293.21





Oregano bagasse production Expressed in tons

Current	
Tons per year	1470.17
Annual costs (40 Kg)	36,754

Expansion	
Tons per year (40 Kg)	16,725

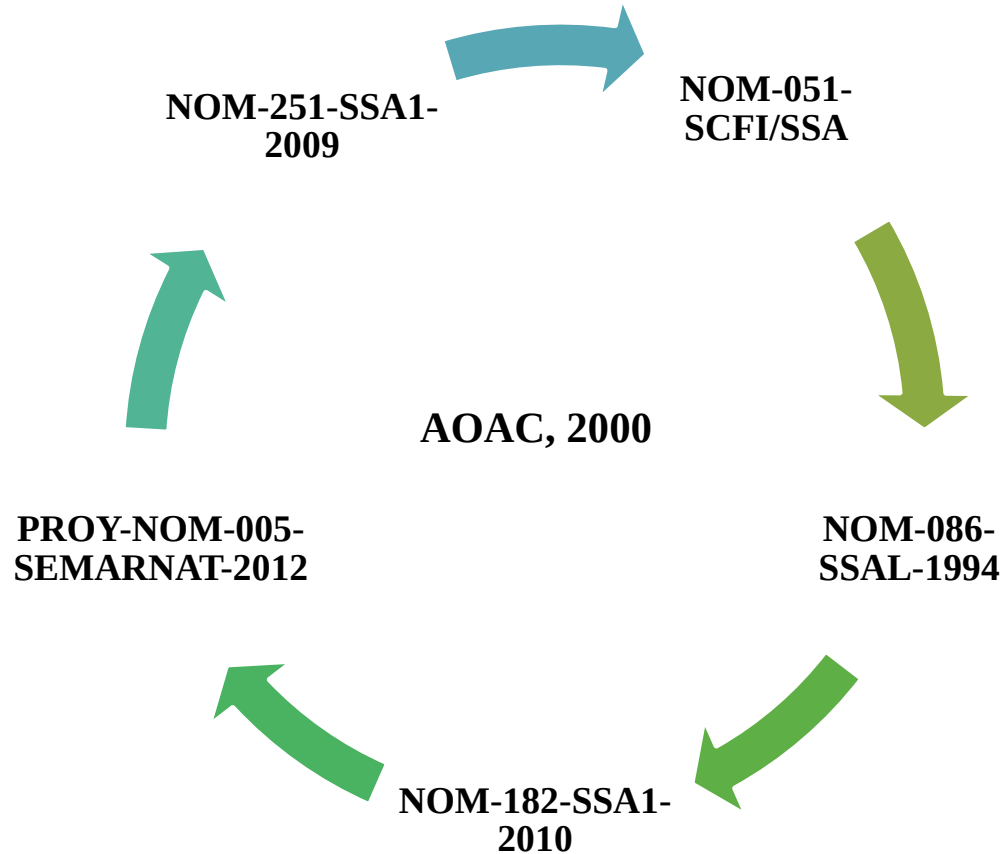
NUTRIOREG will adopt the patent registry in the IMPI

NUTRIOREG will adopt the patent registry , It was requested a patent unityof IMPI

This is an innovative producto, so, it will be patented

An invention must have and show novelty

Method Asseement



Process Flowchart	Date: 10-15-2020
Method: Hydridistillation	Process: Obtención de aceite de orégano y bagazo
Authorized: MAAO	Checked: MLDM

Flow process diagram (oregano bagasse)

Own source

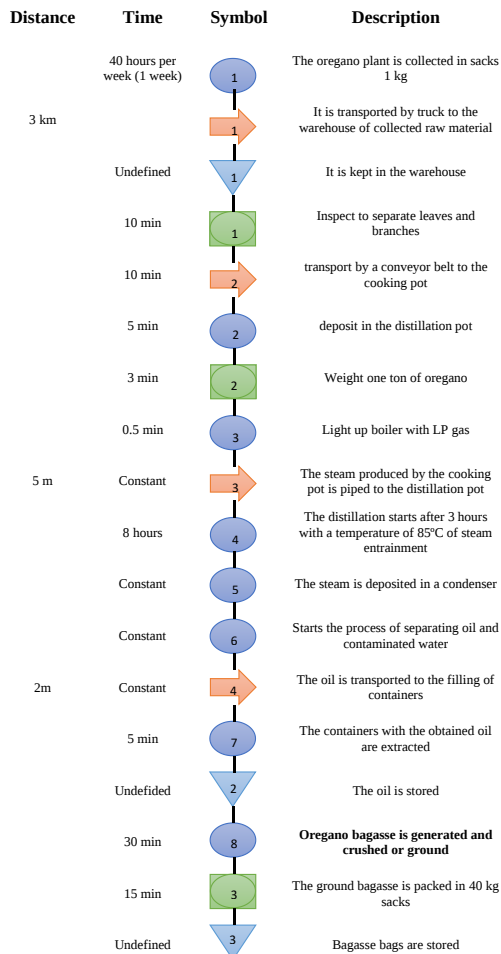


Table 2 Summary Table

Activity	Symbol	Quantity	Time (min)	Distance (m)
Operation		8	2920.5	
Combined Act.		3	28	
Transport		4	0	3007
Store		3	Undefined	
TOTAL	4	18	2958.5	3007

Production Process



Results



- **Figure 1. Atomic Absorption Equipment . (CIAD)**



Physicochemical Test CIAD 2019

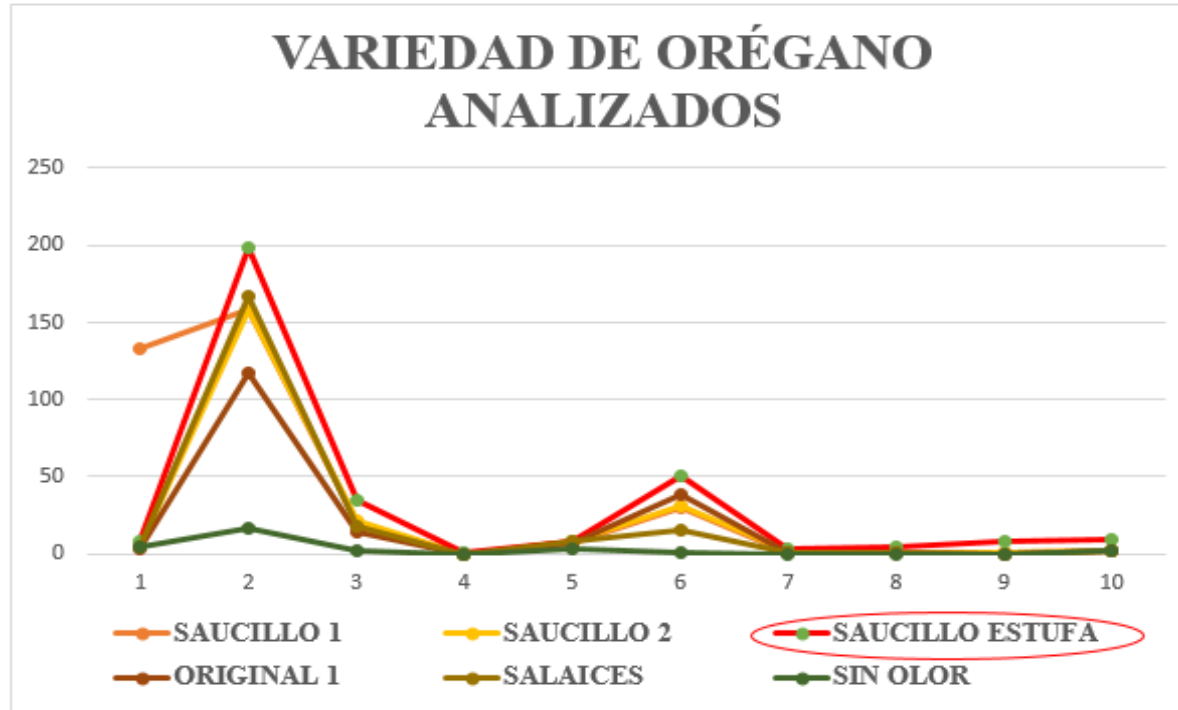


- **Figure 2. Distiller to make Kendjall method (ALCODESA)**



- **Searches for patent registration**

Variety of oregans analyzed



Supported by CIAD

ID
90188
DATE
26/04/2019

Customer: 2004 General Public
Sample: 00028 Others ingredients
Package: PAQ 10

26/04/2019
26/abr./19 01:10
Report : Full

OBS: Oregano Saucillo Stove. 11/April/2019 Alejandro Palacios.

Dry Base Results		Milk Production	
Dry Matter	88.7 %	Milk Production	lt/cow/day
Ashes	8.7 %	Forage Cons M Dry	kg/cow/day
Dcs	%	VRF	kg of M.S.
BMD	%	Degradab Enzymatic	%
Energy		Urea Kg/Ton	
ENL INRA	Mcal/Kg M.S	Micotoxins	
ENL NRC	Mcal/Kg M.S	Aflatoxin	ppb
In Manto	Mcal/Kg M.S	Zearalenone	ppb
In Gan	Mcal/Kg M.S	Vomitoxin	ppm
Crude Fat	6.69 %		Optimal
Starch	%		Max 20 ppb
Starch Dig Rumen	%		Max 300 ppb
% Grains	%		Max 5 ppm
Fast Energy	%	Minerals	
CNF	%	Calcium	%
Total Sugars	%	Phosphorus	%
Fibers		Magnesium	%
ADF	%	Potassium	%
NDF	%	Manganese	ppm
NDF Indigestible	% M.S.	Copper	ppm
NDF digestible	% M.S.	Zinc	ppm
NDF Indigestible	% NDF.	Arsenic	ppm
NDF digestible	% NDF.	Fermentative Quality	
Crude Fiber	11.19 %	PH	Optimal Quality
Lignin	%	Ammoniacal Nitrogen	% 3.75 Middle
Proteins		Soluble nitrogen	% 5.00 Good
Crude Fiber	16.44 %		60.00 Good
Degradable Protein	%PC		
Non-Degrad Protein	%PC		
PDIN	%		
PDIE	%		
PDIA	%		

[Handwritten signature]

Q.B.P. Mario René Sodi Pérez

Physicochemical Studies



$$\text{CHO'S} = 100 - 11.3 - 8.68 - 6.69 - 11.19 - 16.44 = 45.7 \%$$

$$\text{KCAL} = 45.7(4) + 16.44(4) + 6.69(9) = 308.77 \text{ Kcal}$$

Formulas obtained from AOAC, 2000



Conclusion

Nutritional Table CIAD, 2019 (Per 100 grams of supplement)

Macronutrients

•Na	0.00403%
•Ca	1.3556%
•K	0.7682%
•Mg	0.4232%
•N	2.6304 %
•P	0.1794%

Micronutrients

•Ni	5.92 ppm
•Fe	198.04 ppm
•Zn	13.9 ppm
•Cu	8.2 ppm
•Mn	13.47 ppm

References

- Alarcón, B. M. (2005). El orégano, una tabla de producción para el sureste del estado de Chihuahua. INIFAP- CIFAP- Madera, Chih.
- ALCODESA (2019) Alimentos Concentrados de Delicias.
- CIAD. (2019). Centro de Investigación de Alimentos y Desarrollo A.C. Cd. Delicias Chihuahua, adscrito a CONACYT.
- CIAD. (2019). Centro de Investigación de Alimentos y Desarrollo A.C. Cd. Hermosillo Sonora, adscrito a CONACYT
- COFEPRIS (2010). Comisión Federal para la Protección contra Riesgos Sanitarios. [http://www.cofepris.gob.mx/MJ/Páginas/Normas-Oficiales- mexicanas](http://www.cofepris.gob.mx/MJ/Páginas/Normas-Oficiales-mexicanas).
- INEGI. (2015) Instituto Nacional de Estadística y Geografía. Preconteo de Encuesta Intercensal. País México.
- Latimer Jr. George W. (2019) The Official Methods of Analysis International. of AOAC INTERNATIONAL
- DOF. (2019) Diario Oficial de la Federación. Normas Oficiales Mexicanas.
- Rodríguez, R. A. (2011). El Emprendedor de Éxito. México, D. F. McGraw- Hill /Interamericana Editores, S. A. de C. V.
- SAGARPA (2018) Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación.
- Secretaría de Economía. (IMPI, 31 de mayo de 2019). Blog. Obtenido de La Propiedad Industrial en México:
- W. Niebel, Benjamín. (1988) INGENIERIA INDUSTRIAL, Métodos Tiempos y Movimientos, Novena Edición, México, Alfaomega.
- SEDATU (2018) Secretaría de Desarrollo Agrario y Territorial Urbano. Gobierno Federal. País México.



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