



Media Release

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## HERBS & SPICES ANTIOXIDANT RICH AND INTEGRAL TO YOUR DAILY DIET

Who would have thought a mere sprig of oregano could pack a powerful biological punch, but a review released in the Medical Journal of Australia (MJA) and an accompanying Position Paper from US and Australian health experts, **shows culinary herbs and spices contain high concentrations of antioxidants and phytonutrients and may provide long term health benefits that even outweigh their short term taste sensations.**

While further research is required, particularly in terms of human clinical trials, there is an extensive library of in vitro and animal based research showing herbs and spices aid in the prevention of chronic diseases such as **cardiovascular disease** (*some studies show a reduction in cholesterol through consumption of garlic* <sup>MJA 20-32</sup>; *the high antioxidant level in some herbs have the potential to inhibit the oxidation of LDL cholesterol* <sup>MJA 35-41</sup>) and **cancer** through the potent antioxidant effects of several herbs (*tumeric, lemongrass, basil, parsley, rosemary and mint*). <sup>MJA 64-67</sup>

Herbs and spices also appear to work to maintain our health by **supporting the immune system, aiding digestion and managing nausea.** <sup>2</sup> Their anti-inflammatory properties also seem to **support bone and joint health and relieve pain.** <sup>MJA 103-112</sup>

Due to their high level of antioxidants and phytonutrients, early evidence also suggests that herbs and spices act synergistically to enhance the health-related properties of other foods and to multiply the antioxidant value of a meal. <sup>3</sup> The process has been tagged “food bundling”.

**So compelling is the evidence, that leading Australian and American nutrition and health experts say “the forgotten foods” should be recognized as a food group and included in dietary guidelines and food models.** <sup>4</sup>

*“Research now shows that herbs and spices pack a powerful biological punch. Not only are they high in phytonutrients including antioxidants, they are also rich in vitamins and minerals and other bioactive components,”* said editor of the MJA Supplement, Professor Linda Tapsell of the National Centre of Excellence in Functional Foods (NCEFF).

*“Herbs and spices have two great “selling points”. Firstly, they appear to extensively support nutritional health and secondly, they increase the nutritional quality and attractiveness of the daily diet through their variety, flavour, colour and aroma. Learn to use herbs and spices daily for taste and flavour and chances are your consumption of fat, salt and sugar will dramatically drop.”*

While it has been long known that antioxidants are abundant in fruits and vegetables, researchers have recently **identified high concentrations of antioxidants in herbs and spices.**

The results show that the antioxidant capacity of herbs and spices compares very favourably with that of vegetables and fruits. <sup>2</sup> (see charts in media kit)

And while a spoonful of herbs or a smattering of spice is much smaller in weight than a serve of berries <sup>5</sup>, the intense concentrations of antioxidant in herbs and spices ensure their addition to a meal provides **a substantial antioxidant boost.**

Through their aromatic oils, herbs and spices deliver **intense flavours and food satisfaction.** Herbs and spices can **replace fat, sugar and salt in our food,** make



vegetables and bland foods like grains and legumes tastier, and assist in weight management by making low fat food more appetizing.

They enrich our diet by **increasing the variety of foods** we consume (a recommended target is 20-30 foods per day), **by upping the colours** in our meals to make them more nutritious, and by multiplying the antioxidant score of meals **via “food bundling”**.<sup>1</sup> Their antimicrobial properties can reduce the risk of bacteria in food.<sup>6</sup>

*“For centuries, herbs and spices have underpinned traditional medicine but only now is science realising the potential health benefits of these miniature plant foods,”* said leading Australian dietitian Karen Inge who also worked on the herb and spice research. *“Even Hippocrates had a repertoire of 300 remedies involving herbs and spices, and the Chinese, Indians and Indigenous Australians have been using herbs and spices for both culinary and medicinal uses for centuries.*

*“Research today shows populations that follow a traditional Mediterranean diet high in antioxidant rich plant foods, including garlic and herbs, have a reduced incidence of chronic illnesses such as heart disease and cancer.*

*“The message is becoming increasingly clear, include herbs and spices in your daily diet. They can be conveniently added to day to day cooking, are inexpensive, are readily available and always in season, and by their essence, highly palatable and easily consumed.*

*“We’re not asking people to drink two litres of a concoction, search for an expensive out of season fruit or consume a handful of supplements. Herbs and spices are so concentrated in phytonutrients including antioxidants, we are simply saying increase your daily consumption and be creative – throw three teaspoons of herbs into your stir fry rather than one, whip some garlic into your mashed potato, spice up your scrambled eggs with some oregano and don’t forget the ginger in your juice.”*

Tapsell, Inge and other leading health professionals including Dr Katrine Baghurst, Dr Craig Patch (NCEFF) and Dr Michael Fenech (CSIRO) and dietitian Virginia Fazio gathered recently to announce the findings and suggested a healthy eating guide be considered that classifies “Herbs & Spices” as a food group and categorises the plant foods in the “Eat Plenty and a Wide Variety” section<sup>4</sup> (see below Figure 1).

### **About the Research**

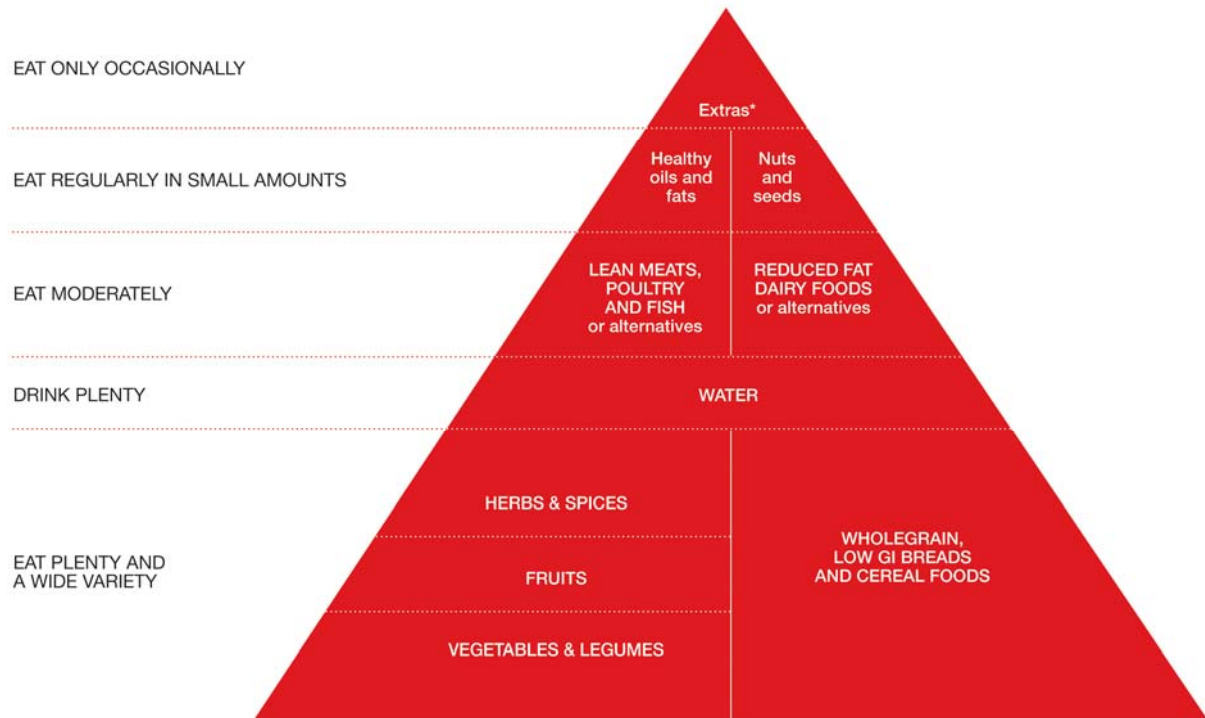
The MJA supplement entitled *“The Health Benefits of Herbs & Spices – the past, the present and the future”* follows a peer-reviewed summary of international research, with the published supplement focusing on the benefits of culinary herbs and spices in targeted health areas.

Directed by National Centre of Excellence in Functional Foods (NCEFF) and made possible via an educational grant from Gourmet Garden, the research was headed by NCEFF director Professor Linda Tapsell and conducted by an Australian panel of medical and health experts.

The Position Paper, entitled *“Herbs & Spices – An Integral Part of the Daily Diet”* is an Australian-US collaboration led by nutrition scientist, Dr Katrine Baghurst, and expressed the shared views of Americans Dr Clare Hasler and Susan Bowerman from the University of California and from Australia - Dr Paul Nestel from the Baker Heart Research Institute, Professor Tapsell, and leading dietitians Karen Inge and Virginia Fazio.



Figure 1. A Healthy Eating Guide



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#### References for Herbs & Spices – Integral to Your Daily Diet

All references referring to the Medical Journal of Australia – “*The Health Benefits of Herbs & Spices – the past, the present and the future*” (Supplement Vol 185 number 4 – 21 August 2006)

For full transcripts of papers [www.healthyherbs.com](http://www.healthyherbs.com); ffi [www.gourmetgarden.com](http://www.gourmetgarden.com)

#### Further References

- 1 Medical Journal of Australia – “*The Health Benefits of Herbs & Spices – the past, the present and the future*” (Supplement Vol 185 number 4 – 21 August 2006)
- 2 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S
- 3 Ninfali P; Mea G; Giorgini S; Rocchi M; Bacchiocca. Antioxidant capacity of vegetables, spices and dressings relevant to nutrition B J Nutr 2005; 93: 257-66
- 4 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S – Figure 1 and point 6.
- 5 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S – Table 1a and 1b
- 6 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S – Reference 66, 70 ,72



## FURTHER NOTES

### HEALTH BENEFITS OF HERBS AND SPICES

Key findings from in vitro, human and animal model research include:

- Fresh garlic and its beneficial role in cardiovascular health – there is strong evidence that half to one clove of garlic per day may have a cholesterol lowering effect of up to 9%.<sup>MJA 20,21</sup> The antioxidants in herbs also have the potential to inhibit oxidization of LDL cholesterol.<sup>MJA 35-41</sup>
- Ginger and its beneficial role in osteoarthritis – doses of ginger extract, ranging from a half to 1 g per day, reduced arthritic knee pain experienced by patients compared to a sugar pill placebo.<sup>MJA 102-104, 107, 109</sup>
- Certain phytochemicals from herbs or herb extracts have been shown to inhibit one or more of the stages of the cancer process ie initiation, promotion, growth and metastases.<sup>MJA 62-65</sup> Herbs and spices protect against antioxidant stress and inflammation – both of which are risk factors for cancer initiation and promotion.<sup>MJA 64-67</sup> Several animal studies have shown anti-carcinogenic properties in tumeric, basil, rosemary, mint, lemongrass and parsley.<sup>MJA 46, 47, 53,57</sup> Also, an overall lower cancer risk was found in India – thought to be due to herbs and spices found in Indian curry – especially tumeric, cumin and chilli.<sup>1</sup>
- Digestion - Many herbs and spices exert significant gastric stimulatory effects that help to prevent and alleviate some digestive disorders.<sup>2</sup> Herbs and spices have a digestive stimulatory action. Cumin, coriander, fennel, mint and garlic are well known remedies used in traditional medicine to cure digestive disorders. Parsley seed extract appears to promote diuretic and laxative effects. The digestive stimulant effect of culinary herbs and spices was contributed through multiple mechanisms:
  - (i) stimulation of bile and increase bile acid secretion
  - (ii) significantly shorter food transit time reducing the possibility of gastroesophageal reflux caused by food retention in the stomach; and fermenting food in the intestine leading to discomfort and flatulence
  - (iii) stimulation of digestive enzymes production and secretion<sup>2</sup>
- Ginger has an antiemetic effect and has been shown to reduce nausea and vomiting.<sup>3,4</sup>
- Antimicrobial – the natural antimicrobial properties in herbs and spices reduce the risk of bacteria in food and play a key role in food safety. Herbs and spices have been used for centuries for food preservation.<sup>5,6</sup>

#### Reference Details for Health Benefits

All references referring to the Medical Journal of Australia – “*The Health Benefits of Herbs & Spices – the past, the present and the future*” (Supplement Vol 185 number 4 – 21 August 2006)

#### Other references

##### Cancer

- 1 Sinha R, Anderson D, McDonald S, et al. Cancer risk and diet in India. *Journal of Postgraduate Medicine* 2003; 49: 222-228.

##### Digestion

- 2 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S Reference 61-65; Section 4

##### Ginger

- 3 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S - reference 59
- 4 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S - reference 60



**Antimicrobial**

- 5 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S - reference 66
- 6 Position Paper – August 2006 – Herbs & Spices An Integral Part of the Daily Diet: Baghurst K; Tapsell L; Nestel P; Inge K; Fazio V; Hasler C; Bowerman S - reference 70

**ANTIOXIDANT RICH**

Herbs and spices are potent plant foods, full of phytonutrients (from plants) including antioxidants. The leaf of a plant used in cooking is a culinary herb and any other part of the plant, often dried, is a spice. As the table below shows many herbs and spices are rich in antioxidants.

ANTIOXIDANT RATINGS FOR HERBS AND SPICES				
RICH Source of Antioxidants				Reference
Containing over 14000 micromole Trolox equivalent (umol TE) per 100gram/ over 950 micromole Trolox equivalent (umol TE) per serve				
	ORAC Rating (umol TE/ 100g)		ORAC Rating (umol TE/per serve)	Serve Size
Cloves	314446		3144	1g
Cinnamon	267536		2675	1g
Tumeric	159277		1593	1g
Oregano	40164		2008	5g
Sage	32004		1600	5g
Rosemary	30335		1517	5g
Thyme	29091		1455	5g
Marjoram	29300		1465	5g
Mint	19366		969	5g
Ginger	14840		1484	10g
GOOD Source of Antioxidants				Reference
Containing between 4500-14000 micromole Trolox equivalent (umol TE) per 100gram / bet.250-1000 micromole Trolox equivalent (umol TE) per serve				
	ORAC Rating (umol TE/ 100g)		ORAC Rating (umol TE/per serve)	Serve Size
Tarragon	15542		777	5g
Peppermint	13978		699	5g
Basil	10301		515	5g
Lemongrass	8745		437	5g
Dill	7792		390	5g
Continental Parsley	6627		331	5g
Lemon balm	5996		300	5g
Coriander / Cilantro	5598		280	5g
Garlic	5346		257	5g
SOURCE of Antioxidants				Reference
Containing under 4500 micromole Trolox equivalent (umol TE) per 100gram / under 250 micromole Trolox equivalent (umol TE) per serve				
	ORAC Rating (umol TE/ 100g)		ORAC Rating (umol TE/per serve)	Serve Size
Curley Parsley	4372		219	5g
Chives	2094		105	5g
Chilli	2025		101	5g
<p><b>Reference:</b> Table 1a and 1b Position Paper August 2006 - Herbs and Spices - An Integral Part of the Daily Diet..Baghurst K, Tapsell L, Nestel P, Inge K, Fazio V, Hasler C, Bowerman S - for full chart <a href="http://www.healthyherbs.com">www.healthyherbs.com</a> or <a href="http://www.gourmetgarden.com">www.gourmetgarden.com</a>. a Ninfali et al 2005; b Wu et al 2004; c Southern Cross University 2006</p>				



Furthermore “food bundling”, where antioxidant foods like herbs and spices are added to other foods, like basil to a tomato salad, appears to enhance the overall antioxidant capacity of the meal. For instance, marjoram from the oregano family has been shown to increase the antioxidant capacity by 200%.<sup>1 (MJA -137)</sup>

*“Antioxidants work in the body to mop up free radicals, the damaging by-products of our modern lifestyle released during metabolism and other physiological body functions,”* said dietitian Karen Inge, who worked on the review.

*“They are becoming increasingly important in preventive medicine. We believe they may contribute to the prevention of diseases associated with oxidative stress and damage like tissue breakdown and some cancers and cardiovascular disease.”*

*“People need to ensure they get enough antioxidants daily, and herbs and spices are an excellent source, highly convenient to use in day to day cooking, inexpensive and by their essence, highly palatable and easily consumed.”*

#### **Reference Details for Antioxidant Rich Section**

All references referring to the Medical Journal of Australia – *“The Health Benefits of Herbs & Spices – the past, the present and the future”* (Supplement Vol 185 number 4 – 21 August 2006)

#### **Further references**

- 1 Ninfali P; Mea G; Giorgini S; Rocchi M; Bacchiocca. Antioxidant capacity of vegetables, spices and dressings relevant to nutrition B J Nutr 2005; 93: 257-66

## **DIETARY PERSPECTIVE**

In the western world, obesity has reached epidemic proportions and is a precursor to many more serious illnesses such as cardiovascular disease, diabetes and cancers. In Australia, over 60% of people are obese or overweight<sup>1</sup>.

From a dietary perspective, herbs and spices may assist in weight management and ensure a more nutritious diet, with their intense flavours potentially replacing fat, salt and sugar in food. They help bridge the “nutrition gap” transforming bland basics such as whole grains, vegetables and beans to give them taste-appeal.

Herb and spices provide taste and food satisfaction. More than half our taste comes from smell, and herbs and spices provide smell and aroma and provide taste satisfaction to fresh food. Food manufacturers often add sugar, salt and fat to provide taste, but at a heavy cost.

Nutrition today also focuses on greater food variety and diversity. Health guidelines suggest a minimum of 20-30 different foods per day, and the addition of herbs and spices to the diet makes this target more easily achievable.

Another important health philosophy is to “eat by colour”, with a colourful meal ensuring a broad range of nutrients. Herbs and spices offer four of the five palate options with white/brown (garlic, ginger); green (basil, oregano, coriander and a myriad of leafy herbs); red (chilli) and yellow/orange (tumeric and lemongrass) well covered.

Apart from antioxidants, herbs and spices provide other phytonutrients such as vitamin c, flavonoids, carotenoids, capsaicin in chilli, allicin in garlic and gingerols in ginger.

Surprisingly, weight for weight many herbs have more vitamin C than foods such as citrus fruits. Over a day, adding herbs to your meals can make a difference. A 5 gram serve of



parsley will give you more than 10% of your daily vitamin C requirement. Some herbs are also rich in calcium and iron.

Ease of use is another plus for herbs and spices. They can be simply added to day to day cooking, are inexpensive, are readily available and always in season, are easily consumed and the wide range of herbs and spices means plenty of tastes to continually stimulate the palate.

Epidemiological studies also show Australians should take a leaf from the Mediterranean diet and throw a spoonful of oregano, thyme and parsley or a clove of garlic into tonight's pasta.

Research shows populations that follow a traditional Mediterranean diet high in antioxidant rich plant foods, including garlic and herbs, have a reduced incidence of chronic illnesses such as heart disease and cancer. <sup>MJA 13, 127, 128</sup>

Of particular interest is Australian research that found first generation Greek migrants display a 35% lower death rate and reduced incidence of cardiovascular disease, in comparison to Australian-born controls, despite the high prevalence of risk factors such as obesity, smoking and sedentary lifestyles.

So while the Greeks enjoy good health and liberally use herbs and spices, motivated by their dietary guidelines that recommend *“oregano, basil, thyme and other herbs grown in Greece are good sources of antioxidant compounds”*, the Australian dietary guidelines have to now overlooked the category.

*“With the new Nutrient Reference Values, public health guidelines are currently being reviewed.*

*Health benefits of herbs and spices should be recognized, and these plants foods need to be included in the Australian dietary guidelines and food models,”* said Tapsell.

#### **Reference Details for Dietary Perspective**

All references referring to the Medical Journal of Australia – *“The Health Benefits of Herbs & Spices – the past, the present and the future”* (Supplement Vol 185 number 4 – 21 August 2006)

#### **Other references**

- 1 [http://www.heartfoundation.com.au/downloads/AIHW\\_HSVD\\_04\\_FINAL.pdf](http://www.heartfoundation.com.au/downloads/AIHW_HSVD_04_FINAL.pdf) Heart Stroke and Vascular Disease Facts 2004

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#### **Attachments:**

- List of authors and their sections
- Antioxidant tables
- Herbs and Spice table