



# FOOD BELIEFS

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## 8.1 INTRODUCTION

Factors affecting food choice are found in the 'food perception model of food selection'. It is made up of three arms addressing the questions 'why?', 'who?' and 'where?' [1]. 'Why' refers to satiety, tolerance, taste, price, convenience, beliefs and prestige of foods. Familiarity, which is an indicator of length of previous exposures to foods, also affects food choice. Satiety is an important category, because hunger triggers yearning for satisfaction and contentment. Tolerance, or conversely intolerance, relates to any ill effect experienced in an encounter with a food that will cause its rejection. Taste refers to sensory response. Price refers to the subjective evaluation of the cost of food. Convenience depends on the ease which a food may be prepared by the choice-maker. Prestige describes the perceived suitability of a food for important guests or special occasions.

'Who' identifies persons in terms of their specific biologic needs which are determined by heredity, gender, age, health, and activity. In addition, the psychology of the individual is addressed; this may describe the target population in terms of personal state of mind (such as mental depression) which influences food selection. 'Where' relates to the physical and social environments within which the food choice occurs. The physical environment refers to the place and time of food choice, while the social environment encompasses the social and cultural norms that influence the individual's relationship to foods. Moreover, economic status belongs within the social category of variables.

There are 2 distinct terms embodied in food habits-- foodways and food behaviour. The term foodways generally refers to ways in which a distinct group selects, prepares, consumes, and otherwise reacts to and uses portions of the available food supply. The term food behaviour denotes the same kinds of activities, as carried out by an individual. Foodways, food behaviours, and food habits are all influenced by food beliefs which are predicated on history and experience. Food beliefs are shaped by cultural history of ancestors, geographical location, religious and social customs, physiological and psychological factors [2]. Food beliefs are of interest for the following reasons:

1. to provide basic information on cultural factors that may influence food intake and health decision making,
2. to provide opportunities to describe them scientifically in accordance with present knowledge in nutrition, and
3. this information is crucial for the strategic development of health education to vulnerable elderly groups with food beliefs that may adversely affect their nutritional status.

Detailed collection of data on the prevalence and context of a range of cultural variables such as beliefs, attitudes or knowledge may assist in the understanding of a particular behaviour.

This chapter will cover comparison of variables on food beliefs of 7 study centres, namely ACA, GRK-M, GRK-S, SWE, FIL, CTJ-R, and CTJ-U. Considerations for discussion, general conclusions and suggestions for future research will also be provided.

## **8.2 SUBJECTS AND METHODS**

### *Subjects.*

971 elderly subjects of 7 centres (ACA, GRK-M, GRK-S, SWE, FIL, CTJ-R, and CTJ-U), 413 men and 558 women, aged 53 to 104 were interviewed. Sampling method varied from centre to centre. Random sampling using telephone directory listings was applied in ACA and GRK-M. In CTJ-R and CTJ-U, subjects were recruited from official government reports. A representative group of elderly people in Gothenburg were selected in SWE.

### *Methods.*

Subjects were asked about food beliefs using multiple choice questionnaires or RAP. Interviews were carried out from 1989 to 1992. The conduct of the survey differed between the centres. In ACA, questionnaires were mailed to participants to be filled in, and the completeness was checked on the day of their visits for a physical examination. In GRK-M, GRK-S, SWE, CTJ-R, CTJ-U, and FIL, interviews were conducted through home visits. In the Greek sample, RAP was used to obtain a qualitative description of the prevalence of certain beliefs which were then categorised into very common, common and uncommon.

### *Food beliefs.*

Most variables on food beliefs were comparable amongst 5 centres. One question commonly used was 'foods believed to be good or bad for health'. In the Filipino study, this question was rephrased 'foods tried to be avoided', which presumably means that they believed they were harmful to health.

*Statistical analysis.*

Descriptive analyses of the data set was applied. Data was expressed as a percentage of the elderly who answered a specific variable. The responses were grouped as very common (>75% of subjects), common (50-75% of subjects), less common (25-50% of subjects), and uncommon (<25% of subjects) in order to accommodate data collected qualitatively using RAP.

### **8.3 DESCRIPTIVE ANALYSES BY STUDY CENTRES**

#### **8.3.1 Anglo-Celtic Australians**

The majority of elderly subjects in ACA did not believe that some foods are 'good' for health (82% in men and 75% in women) (See Table 8.1). Bran, fibre, and vegetables were foods believed to be good for health by some cohorts (See Table 8.2).

**Table 8.1. ACA elderly subjects who believe that some foods are 'good' for health.**

	<b>Men (%) (N= 51)</b>	<b>Women (%) (N= 48)</b>
Yes	18.5	25.5
No	81.5	74.5

**Table 8.2. Foods believed to be good for health by ACA elderly subjects.**

	<b>Men (%) (N= 51)</b>	<b>Women (%) (N= 48)</b>
Bran	11.7	8.6
Dairy foods	1.2	0.0
Fibre	4.6	13.3
Herbs	1.2	8.4
Vegetables	5.7	7.3

For the question relating to foods believed to be 'bad' for health, again, a large proportion of elderly ACA had negative answers (71% in men and 73% in women) (See Table 8.3). Foods listed as bad for health by some respondents were fatty foods and herbs. Surprisingly, some elderly women believed that vegetables were bad for health (See Table 8.4).

**Table 8.3. ACA elderly subjects who have beliefs that some foods are 'bad' for health.**

	<b>Men (%) (N= 51)</b>	<b>Women (%) (N= 48)</b>
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Yes	29	27
No	71	73

**Table 8.4. Foods believed to be bad for health by ACA elderly subjects.**

	<b>Men (%) (N= 51)</b>	<b>Women (%) (N= 48)</b>
Dairy foods	4.6	1.2
Fatty foods	14.0	7.3
Herbs	10.6	3.7
Preservatives	3.4	1.2
Salty foods	1.2	4.9
Sugar	0.0	6.1
Vegetables	0.0	1.2

### 8.3.2 Greeks

Food and health beliefs related to longevity and migration in the elderly GRK-M and GRK-S are summarised in Table 8.5. The prevalence was indicated as a percentage of respondents having the same beliefs: >75% (very common = VC), 50-75% (common = C), 25-50% (less common = LC), and 1-25% (Uncommon = UC). The place where the beliefs existed are abbreviated as S = Spata, M = Melbourne, and SM = belief held in both places. If the belief originated from traditional sources e.g., beliefs passed down through generations, it was classified as 'old', 'new' if it originated from contemporary sources e.g. magazines, doctors, and 'mixed' if an 'old' belief had been modified to explain modern day diseases.

The majority of elderly Greek respondents (>75%) in Greece and Australia expressed great concern about their children and grandchildren eating too much meat and 'convenience' foods and not enough traditional Greek food, especially legumes [11]. The high intake of meat and low intake of legumes were singled out by the elderly as being the cause of most modern day diseases (for example cancer, heart disease, diabetes). The Greeks in Australia also reported that the very high consumption of meat during their first 20 years in Australia was the main cause for the emerging deterioration of health in Greek Australians today (mainly increasing rates of heart disease and colonic cancer). In Australia, meat was eaten almost everyday because it was comparatively inexpensive whereas in Greece, meat was eaten only 1-2 times a month.

They pointed to the Greek Orthodox Religion which recommends abstaining from animal products for at least 150 days of the year (which actually works out to about 2-3 days a week where one can eat animal products), and in place of animal products, legumes, seafood, olives, olive oil, rice, pasta and bread are recommended (legumes are supposed to be eaten every

Wednesday and Friday). The subjects indicated that they tried to follow this 'healthy tradition' of periodic abstinence from animal products. However, the majority of the elderly are living with their children and rely on them to prepare meals; legumes are unpopular with the younger generation and thus are not regularly cooked in Greek households, unless specifically cooked for the older members of the household.

**Photo 8.1.** Australia, Melbourne (Greek) 1990-91: plant called 'borantza' in Greek (*Borrago officinalis*). Believed to treat/prevent heart disease & blood pressure. Leaves boiled and drunk as a tea, or leaves used in cooking.



**Photo 8.2.** Australia, Melbourne (Greek) 1990-91: chicory believed to lower blood pressure and to 'clean out' kidneys. Endive not considered as 'healthy' as chicory.



**Photo 8.3.** Australia, Melbourne (Greek) 1990-91: cyprus nuts were used by an elderly Greek subject as a dental wash to help prevent tooth decay.



**Photo 8.4.** Australia, Melbourne (Greek) 1990-91: this shrub called 'apsithia' in Greek (*Artemisia Absinthium*). Believed to treat diabetes; leaves are boiled and drunk as a tea.



Although not a food belief, great importance was also ascribed by >75% of the elderly Greek Australians to social activity and networking available for elderly in Greek villages (due to proximity of houses and limited language barrier), and that this gave 'life and health' to an elderly person. They stated that on migration, they lost this social networking, and as a result

tended to remain indoors. They feel that this has contributed to their deterioration in health, well-being, and quality of life.

**Table 8.5. How has your food intake changed on migration and how do you think this has affected your health? Which foods have been detrimental or good for your health?**

<b>Distant Past Food Intake (Living in Greece &gt;30 yrs ago, aged &lt;40 yrs)</b>	<b>Past Food Intake (First 15 yrs in Australia)</b>	<b>Current Food Intake (Last 15 yrs in Australia)</b>	<b>Belief of Benefit/Harm of Food to Health</b>	<b>Prevalence VC, C LC, UC</b>
Lamb or goat eaten 1-2 times a month	Eaten almost everyday	Eaten less than once a week	Harmful if eaten more than once a week	VC
Beef rarely eaten	Eaten almost everyday	Eaten 2-3 times a week	Harmful if eaten more than once a week	VC
Chicken eaten once a week	Eaten more than once a week	Eaten less than once a week	Not as harmful as red meat; eat <2 times/week	VC
Fish eaten 2-3 times a week	Eaten 1-2 times a week	Eaten 1-2 times a week	Beneficial when eaten 2-3 times a week	VC
Eggs eaten daily	2-4 eggs eaten per week	2 eggs eaten per month	Beneficial when eaten daily	C
Milk not available daily, drunk when sheep/goats had milk in spring	Cow's milk drunk daily	Cow's milk drunk daily	Beneficial when drunk daily, but sheep's milk is better	C
Cheese was eaten, daily, mainly white cheese (feta)	Feta replaced with ripened high fat yellow cheese, more eaten daily	Ripened cheese replaced with feta, eaten in smaller amounts	Feta is the best cheese for health, eaten daily but not too much	VC
Yoghurt eaten in large amounts, made from sheep/goat's milk, 2-3 times a week	Not available to buy, home made with cow's milk, less eaten	Less eaten, most bought, made from cow's milk, eaten less than once a week	Beneficial when eaten in large quantities	VC
Legumes eaten 3-4 times a week	Eaten twice a month	Eaten once a week	Beneficial when eaten 3-4 times a week	VC
Vegetables eaten in large amounts daily in season, especially wild greens	Eaten daily when in season - less eaten; reduced intake of wild greens	Eaten daily in season grown at home, small amounts eaten out of season, overall less eaten only 1-2 times a week	Beneficial eaten in large amounts in season, especially home grown because contains less pesticides & chemicals	VC
Fruit eaten only in season in large quantities, overall not much fruit eaten, mainly grapes, figs, watermelon, cantaloupe	More fruit eaten on a daily basis	Fruit eaten year round, more apples & oranges; still eat a lot of seasonal fruit more fruit eaten now	Beneficial when eaten only when in season, eat in moderation, not essential for health.	C

Pickled vegetables, pickled in salt & vinegar in summer for winter (due to lack of refrigeration), eaten in large amounts	Less eaten	Rarely eaten	Improved refrigeration enabled us to avoid these, salt not good for health	C
Bread (wholemeal) eaten in large amounts every day	Less bread eaten mainly white	Less bread eaten--white & wholemeal	Beneficial, need >4 slices daily, foundation of life	VC
Pasta eaten 2-3 times a week	Less than once a week	Eaten once a week	Beneficial, need to eat 2-3 times a week	C
Rice eaten 2-3 times a week	Less than once a week	Eaten once a week	Beneficial, need to eat 2-3 times a week	C
Olives eaten in large amounts daily	Less eaten	Eaten 1-2/ week (about 20 a week)	Beneficial, eat at least 5 olives daily	VC
Olive oil eaten in large amounts daily; butter, vegetable oils, not eaten	Olive oil replaced with vegetable oils, butter & margarine	Vegetable oils replaced with olive oil, nothing spread on bread	Olive oil is superior to all other oils; margarine not	VC
Cooking methods - foods were stewed/ casseroled i.e. foods eaten "wet"	Stew/casserole replace with barbecues, grills, roasts more "dry" foods	More casseroles eaten, but barbecues still very popular, as well as grills/ roasts	Barbecues not good for health, best to eat "wet" foods as stews/casseroles	VC

### 8.3.3 Sweden

A large proportion of elderly men and women listed vegetables, fish, and fruit as foods good for health (See Table 8.6). Potatoes and bread were the fourth most commonly reported food believed to be good for health. Overall, vegetables, fish, fruit, and bread rich in fibre are foods believed to be good for health by SWE subjects.

	Men (%) (N= 66)	Women (%) (N= 122)
Bread rich in fibre	9	14
Cereals	6	6
Fish	52	42
Fruit	29	27
Liver	-	5
Meat	11	8
Milk	-	7
Potatoes	12	5
Vegetables	59	52

Fatty foods are believed to be bad for health by the majority of cohorts (24%) (Table 8.7). Other foods believed to be bad for health were: sugar/ sweets, fried foods, salty foods, and colouring agents in foods. For the question on alcohol, 44% of total respondents believed it was good for health (55% men and 38% women) (Table 8.7, 8.8).

**Table 8.7. Foods believed to be bad for health by elderly in SWE.**

	N	%
Coffee	6	3
Colouring agents	11	6
Fatty foods	46	24
Fried foods	12	6
Salty foods	12	6
Spices	6	3
Sugar/ sweets	12	6

**Table 8.8. Belief that alcohol is good for health by elderly in SWE.**

	Men (%) (N= 66)	Women (%) (N= 122)	Total (%) (N= 188)
Yes	55	38	44
No	45	57	53
Missing	0	5	3

### 8.3.4 Rural Tianjin

Although the majority of cohorts did not have answers on food beliefs, some elderly men believed that beancurd, and vegetables were good for health (See Table 8.9). On the other hand, meat was the food most often avoided by elderly Chinese in Tianjin rural (See Table 8.10).

**Table 8.9. Foods believed to be good for health by elderly Chinese in rural Tianjin.**

	Men (%) (N= 83)	Women (%) (N= 89)
Beancurd	2.8	0.0
Eggs	1.4	0.7
Fruits	0.7	0.7
Vegetables	5.7	0.7
Unknown	86.1	97.5

**Table 8.10. Foods that elderly Chinese living in rural Tianjin try to avoid eating.**

	Men (%) (N= 83)	Women (%) (N= 89)
Beancurd	0.0	1.3
Meat	8.3	9.6

Salted foods	0.0	0.7
Spices	2.7	0.0
Vegetables	4.0	1.3
Unknown	79.3	79.6

### 8.3.5 Urban Tianjin

Vegetables were the main food believed to be good for health by the elderly in CTJ-U (Table 8.11). However, more than 50% of the subjects did not provide answers. Conversely, foods they tried to avoid eating, were ranked in order from most to least as pork, hot pepper, rice, milk, and sweets.

**Table 8.11. Foods believed to be good for health by elderly Chinese in urban Tianjin.**

	<b>Men (%) (N= 126)</b>	<b>Women (%) (N= 134)</b>
Coarse grain	1.4	0.0
Fish	0.5	1.0
Fruits	1.0	4.5
Milk	1.0	0.5
Vegetables	12.8	12.1
Unknown	62.7	65.4

**Table 8.12. Foods that elderly Chinese living in urban Tianjin try to avoid eating.**

	Men (%) (N= 126)	Women (%) (N= 134)
Hot pepper	3.1	7.0
Milk	2.7	3.6
Pork	14.5	9.5
Rice	5.5	5.0
Sweets	2.4	1.5
Unknown	56.2	54.2

### 8.3.6 Comparison amongst centres

A clear comparison between centres on 'foods believed to be good for health' can be seen in Table 8.13. It can be concluded that the Greek elderly were the strongest believers in foods which were believed to be good for health. This was followed by SWE. On the other hand, the FIL elderly did not have common beliefs on foods which were believed to be good for health.

**Table 8.13. Comparisons between centres on 'foods believed to be good for health'.**

	Bran	Bread	Dairy products	Fish	Fruit	Legume	Meat	Vegetables
ACA	+	-	+	-	-	-	-	+++
GRK	+++	++++	+++	++++	+++	++++	++++	+++
SWE	-	+	-	++	++	-	+++	+++
FIL	-	-	-	-	-	-	-	-
CTJ-R	-	-	-	-	+	-	+	+++
CTJ-U	+	-	+	+	+	-	+	+++

+ = uncommon (1-25% of subjects) ++ = less common (25-50% of subjects)

+++ = common (50-75% of subjects) ++++ = very common (>75% of subjects)

Despite being the strongest believers in foods which were 'good' for health, the Greek elderly did not hold strong beliefs on foods which were 'bad' for health. This was clearly demonstrated in Table 8.14. Conversely, the ACA, SWE, and FIL elderly had a wider range of beliefs on foods which were 'bad' for health, although these were classified as uncommon (<25% of subjects).

**Table 8.14. Comparisons between centres on 'foods believed to be bad for health'.**

	Dairy products	Fatty foods	Fried foods	Herbs	Meat	Preservative	Salty foods	Sugar/sweet	Vegetable
ACA	+	+	+	+	-	+	+	+	+
GRK	-	-	-	-	++++	-	-	-	-
SWE	-	+	+	-	-	+	+	+	-
FIL	+	+	+	-	+	-	+	+	+
CTJ-R	-	-	-	-	+	-	+	-	-

CTJ-U	+	-	+	-	+	-	+	+	-
+= uncommon (1-25% of subjects)    += less common (25-50% of subjects) +++= common (50-75% of subjects)    ++++= very common (>75% of subjects)									

**8.4 DISCUSSION**

**8.4.1 Limitation of the data**

The sample sizes were small especially for old elderly men in ACA, CTJ-R, CTJ-U, and old elderly women in ACA. Disease state, education, and nutritional knowledge may confound food beliefs. Thus, the main argument is whether current food beliefs (conducted cross-sectionally) had cause-effect relationships with current disease and nutritional status of the elderly, or whether they originated from traditional beliefs which may confer longer life. These problems were obvious in centres like FIL, CTJ-R and CTJ-U, which asked the question 'foods tried to be avoided'. Food beliefs may not reflect actual food and health practices due to physiological changes, or even social changes. For example, the elderly may believe that salty food is harmful to their health, but changes in their taste buds caused by zinc deficiency may be contributory to salt addition in their food practices. Greeks believed legumes were good for health but intake was low due to living arrangements and the desire to accommodate food preferences of their children and grandchildren, who were reported to dislike legumes.

**8.4.2 Comparisons between centres**

At some level, food beliefs help individuals organise information that ultimately affects food choice/ selection. Messer has proposed 5 determinants of food selection [3]:

- sensory attributes of food;
- cultural, symbolic, and cognitive dimensions;
- semiotic studies;
- ethnic identity, enculturation, and dietary structure;
- and economic factors.

Interactions occur between these determinants of food selection. For example, even when people have nutritional knowledge or beliefs on what would be good to eat, considerations of flavour and cost take precedence in food choices, and economic factors limit further whether people can satisfy their taste preferences.

Despite cultural diversities on food and health beliefs, some similarities existed amongst different study communities. Fruits and vegetables appeared to be considered beneficial to health by all study communities. Likewise, fatty foods were considered to be harmful to health by most cohorts across the study centres. Contemporary dietary guidelines recommend dietary fibre-rich foods and foods low in fat. It has been well documented that fruits and vegetables are rich in fibre, as well as water-soluble vitamins. High fibre diets are associated with various beneficial

health outcomes such as a reduction in the incidence of colon cancer [4] and constipation in the elderly. Similarly, a low fat diet can reduce the risks of obesity, hyperlipidaemia, coronary heart disease, and perhaps large bowel and breast cancers [4,5].

Current food technology has successfully distinguished between nutrient and non-nutrient components of food [6]. The concept of non-nutrient components of food may be able to fill in the disagreement between food beliefs and contemporary nutrition knowledge. For example, 44% of elderly in SWE believed alcohol to be good for health. A previous study [7] demonstrated that alcohol consumption increased the HDL-cholesterol, which is considered to be protective against coronary heart disease [8]. It is possible that flavonoid compounds of wine, which have antioxidant properties [9], have positive effects on HDL-cholesterol concentration.

Except for Greek elderly, no information was gathered on whether or not beliefs originated from old/ traditional beliefs or contemporary nutrition knowledge addressed by magazine or health-care providers. It may be that beliefs have shifted in line with dietary guidelines due to a high prevalence of chronic degenerative diseases in the elderly. This was obvious in elderly ACA and SWE, where dietary guidelines have been established and well disseminated. Food beliefs can have a significant influence on the consumption of certain foods. An important approach is to distinguish between food intake, as quantitative data, and food beliefs, which help explain why the food choices were made and the constraints on their improvement [10].

Food beliefs, if not in line with dietary guidelines, can have an important impact on nutritional status. For example, the belief of elderly Greeks that it is healthy to avoid animal products or oranges for long periods of time could place such elderly at risk of protein energy malnutrition, water soluble vitamin and mineral deficiency. If elderly communities were to be targeted for health promotion and prevention, their beliefs would have to be taken into consideration in order to facilitate programme implementation. Moreover, further research is required to explore the scientific basis for many of these beliefs which are predicated on the 'wisdom' of the culture.

## **8.5 CONCLUSIONS AND SUGGESTIONS**

This study has demonstrated that in spite of cultural differences amongst study communities, common food beliefs which agree with dietary guidelines do exist. However, in most study centres no attempt was made to distinguish between traditional food beliefs and food beliefs which have been influenced by dietary guidelines. The purpose for this study is to emphasise that invaluable lessons may be learnt by tapping into the 'wisdom' of cultures which have probably come to such food beliefs after many years of 'observation'.

Furthermore, acknowledgement of food beliefs of a particular target group will facilitate implementation of health promotion and prevention programmes. It is advisable that traditional food beliefs be tested by asking the origin of the beliefs or by asking if the same belief exists among younger generations. It is also recommended to obtain food supply data, which will

complement information on food beliefs and food intakes. RAP is a very useful methodology to assess food beliefs qualitatively. It is time-saving, and possibly more reliable than other methods. The power of RAP in assessing food beliefs has been proven in Greek elderly [10]. Hence, in developing countries, it is imperative that RAP be applied wisely to assess food beliefs. The optimal benefits of RAP will certainly be experienced by both investigators and study subjects.

## SUMMARY

- Food beliefs are of interest for the following reasons:
  1. To provide information on cultural factors which may be influencing food intake and health decision making
  2. To provide opportunities to describe beliefs scientifically
  3. For health education of elderly with food beliefs that may adversely affect their nutritional status
- Food beliefs may not reflect actual food and health practices due to physiological or social changes.
- The food beliefs of elderly from 7 centres (ACA, GRK-M, GRK-S, SWE, FIL, CTJ-R, CTJ-U) are reported. Food belief data was collected using questionnaires, except for the Greek samples where an anthropological method (Rapid Assessment Procedures) was used to obtain a qualitative description of the prevalence of certain beliefs, categorised into very common, common and uncommon.
- Greek elderly expressed the strongest food beliefs, which appeared to be predicated on the 'wisdom' of the culture, as opposed to Dietary Guidelines, which were more apparent in the Swedish and Anglo-Celtic elderly.
- Considerable variation was seen with respect to the degree of in-depth enquiry performed by study investigators (e.g. food beliefs reported by <25% of Chinese elderly, yet the Chinese culture is well known for its strongly held food-health beliefs).
- Rapid Assessment Procedures are probably more useful and reliable than a questionnaire approach when studying food beliefs.

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## 8.8 ILLUSTRATIONS

- Photo 8.1. Australia, Melbourne (Greek) 1990-91: plant called 'borantza' in Greek (*Borrago officinalis*). Believed to treat/prevent heart disease & blood pressure. Leaves boiled and drunk as a tea, or leaves used in cooking.
- Photo 8.2. Australia, Melbourne (Greek) 1990-91: chicory believed to lower blood pressure and to 'clean out' kidneys. Endive not considered as 'healthy' as chicory.
- Photo 8.3. Australia, Melbourne (Greek) 1990-91: cyprus nuts were used by an elderly Greek subject as a dental wash to help prevent tooth decay.
- Photo 8.4. Australia, Melbourne (Greek) 1990-91: this shrub called 'apsithia' in Greek (*Artemisia Absinthium*). Believed to treat diabetes; leaves are boiled and drunk as a tea.

## **CHAPTER 8**

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