ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS.

AUSTRALIAN FOOD PLANTS STUDY GROUP. ISSN 0811 5362.

NEWSLETTER

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323 Philp Ave.,
Frenchville.
Qld. 4701.
28/2/2002.

Dear Members and subscribers,

Oh dear! My apologies for the gremlins that got into the last newsletter's printing processes. If anyone got an unreadable page anywhere, please let me know and I'll replace it. As well, there should have been an acknowledgement on pages 12 and 14 that the source of the articles was the "Australian Bushfood Magazine". Somehow that dropped out at some point. So, apologies all round, plus for anything else that might have gone wrong that I haven't realised yet.

Here in Central Queensland it is still very hot. We had to wait till mid February to get a day under 35 degrees and of course, we're still waiting for the Wet; a few heavy short lived storms merely produced weed rain, so the country is green, but there is no standing water round Rocky. North, south and west of us there have been good falls, though we have missed out to date. The longest, hottest and possibly one of the driest summers on record it seems.

Just a postscript to the ASGAP Conference info in the last newsletter:- The bush food incorporated into the Conference Dinner was more token than substance, being a macadamia crust on the lamb rack of the main course and a wattle seed custard with the dessert apple and cinnamon strudel. Delicious of course, but just a little disappointing.

The next national conference will be held in Tasmania in January 2004. It is very unlikely that I will be able to attend, so we will be definitely looking for local involvement to handle our contribution.

There has been more restructuring in the Rockhampton City Council Parks and Gardens Department which has resulted in big changes for the Kershaw Gardens. At this time, everything is on hold, as the redeployment of staff, changes in duty rosters, job descriptions, and so on are starting with the Zoo, then moving on to the Botanic Gardens and finally, to the Kershaw Gardens, so we have been told. This unfortunately, means that any certainty of arrangements and personnel is a long way ahead. One of the immediate results has been that Kevin Quinn has left the RCC and taken a position with the Livingstone Shire Council as the Co-ordinator of Parks and Reserves. As this shire includes the whole of the Capricorn Coast, Byfield, a large rural

hinterland, the main town Yeppoon, and many small towns, its parks, reserves, etc constitute a considerable area of responsibility. We shall of course continue to keep in touch with Kevin, and wish him well in his new position.

Earlier this month Heather Bambrick send me a couple of *Buchanania obovatus* fruits from her garden at Yeppoon. They were too old to try eating, but Phil Esdale took one to try germinating, and I have the other.

Helen Morrow, a former ASGAP Study Group Liaison Officer from Victoria has sent a very nice photo of the Study Group display at the Canberra ASGAP conference for our album to add to the ones I took, so thank you Helen.

Regards,

Lenore

Lenore Lindsay and Rockhampton SGAP.

E-mail: lenorelindsay@hotmail.com

EDIBLE SPECIMENS TABLED AT MEETINGS:

23/11/01: *Aleurites moluccana* (nut), *Backhousia citriodora* (leaves), *Eugenia reinwardtiana* (fruit), *Syzygium luehmanii, S.papyraceum* (fruit).

1/2/02: *Geodorum densiflorum* (tuber), *Orthosiphon aristartus* (medicinal).

22/2/02: Prof. Kerry Walsh from the School of Biological Science at CQU spoke on "Gum Research in *Cassia brewsteri*" (more details further on): *Barringtonia asiatica* (fish poison), *Buchanania obovata* (fruit), *Cassia brewsteri* (seeds), *Cassytha filiformis* (fruit), *Cordia wallachii*?* (fruit), *Drypetes deplanchei* (fruit), *Grewia latifolia* (fruit), *Hibiscus divaricatus* (flower, shoots, root), *Melastoma affine* (fruit), *Orthosiphon aristartus* (medicinal), *Syzygium wilsonii* (fruit).

EXCURSIONS:

4/11/01: Raspberry Creek Road at Canoona: *Acacia aulacocarpa* (root), *Alectryon connatus* (fruit), *Diospyros humilis* (fruit), *Clerodendrum floribundum* (root), *Canthium odoratum, Citriobatus spinescens* (fruit), *Corymbia xanthope, Eucalyptus fibrosa* (nectar), *Ficus opposita* (fruit, shoots, medicinal sap), *Hibiscus heterophyllus* (flower, shoots, root), *Lantana camara** (fruit), *Cassytha filiformis* (fruit), *Eustrephus latifolius* (roots), *Passiflora foetida*, P.suberosa** (fruit), *Dodonea lanceolata* (seed capsules), *Psychotria loniceroides* (fruit), *Santalum lanceolatum* (fruit).

2/12/01: Christmas barbecue lunch on Mt Archer: *Acacia aulacocarpa* (root), *Diospyros geminata, Drypetes australasica,* (fruit), *Eucalyptus media* (nectar), *Euroschinus falcata, Exocarpus latifolius,* (fruit), *Ficus opposita, F. platypoda* (fruit, shoots, medicinal sap), *Lantana camara** (fruit), *Planchonia careya, Syzygium australe* (fruit), *M.viminalis* (nectar), *Corymbia citriodora* (nectar, leaf), *Cissus oblonga* (fruit, root), *Eustrephus latifolius* (roots), *Geitonoplesium cymosum* (shoot), *Passiflora foetida*, P.suberosa** (fruit), *Grewia latifolia* (fruit), *Cycas media, Macrozamia miquellii* (treated seed).

3/2/02: Water Park Creek Rainforest Walk, Byfield: *Acmena smithii* (fruit), *Archontophoenix cunninghamiana* ("cabbage"), ,*Bowenia serrulata* (treated tuber, seed), *Arytera lautereriana, Diospyros pentamera* (fruit), *Cordyline petiolaris* (fruit, heart), *Ficus coronata, F.congesta, F.opposita, F.obliqua* var.*petiolaris* (fruit, shoots, medicinal sap), *Elaeocarpus angustifolius, Grevillea banksii* (nectar), *Hibiscus heterophyllus* (flowers, shoots, roots), *Lantana camara** (fruit), *Livistona decipiens* (heart), *Melastoma affine, Melodinus australis* (fruit), *Pandanus sp.* (fruit, seed, leaf bases), *Planchonia careya* (fruit), *Cassytha filiformis* (fruit), *Cissus hypoglauca* (fruit), *C.opaca* (fruit,root), *Dioscorea transversa* (root), *Eustrephus latifolius* (roots), *Flagellaria indica* (fruit, shoots), *Freycinetia scandens, F.excelsa* (fruit), *Geitonoplesium cymosum* (shoot), *Eleagnus triflora* (fruit), *Clematis glycinoides* (medicinal), *Passiflora suberosa** (fruit), *Piper novaehollandiae* (fruit), *Smilax australis* (fruit), *S.glyciphylla* (fruit, leaf), *Alpinia caerulea* (fruit, rhizome), *Blechnum cartilagineum, Lygodium microphyllum, Pteridium esculentum* (rhizome).

USING BURDEKIN PLUMS.

Burdekin Plums *(Pleiogynum timorense)* are the fruit of a sub-tropical tree. They look I bit like flattened plums or small dark red pumpkins. The flesh around the large ribbed stone is acid, but must be completely ripe and soft. It does not ripen completely on the tree, but must be held for some days after picking. They may be stored in a paper bag, tied in a mesh onion bag and hung on a verandah or similar, or buried.

They can be made into jam, incorporated into baking and desserts such as muffins, apple crumble or apple turnovers, or used in stews, soups and gravies, especially with beef.

BURDEKIN PLUM SOUP.

Boil about a dozen Burdekin Plums in 2 cups water for about 20 minutes.

Strain into a jug and add 1 carton (375 mls) beef stock.

Season with Angostura Bitters and half a teaspoon cinnamon. Adjust taste with salt and sugar if needed.

I served it at room temperature in green-tea cups as an entree.

Ngaire Kane.

LETTERS TO THE EDITOR

Benambra. Vic.
7.2.02

Dear Lenore,

Thanks for the literature on native food plants sent recently. Being new to the group, I don't know what has previously been published on germination of seeds, but offer my own observations on a few points.

Gahnia spp: I have found *G.clarkei* germinates faster than the other 2 species I've tried. All were sown in summer, generally around 20 degrees, and exposed to light. The first seeds of *G.clarkei* germinated a month later and continued over several weeks. *G.subaequighumis* took about 2 months, and *G.sieberana* has failed to germinate after several months (I'm still waiting).

Dianella longifolia: Seeds were first soaked in hydrogen peroxide solution, then gibberalic acid exposure for one lot, a second lot sown exposed to light without acid treatment. Germination began for both lots about 3 weeks later, the more readily for those exposed to light.

I have not yet had any success germinating native *Capparis* spp (*C.mitchellii, C.spinosa, C.nummularia*). Any information on seed viability on this and other genera would be appreciated.

Kind regards,
Kevin Smith.

Over to you out there. If you can contribute information, first hand or second hand, or recommend a source of such knowledge to Kevin (and the rest of us), please write or e-mail, no matter how little it seems. (Ed).

SNIPPETS:

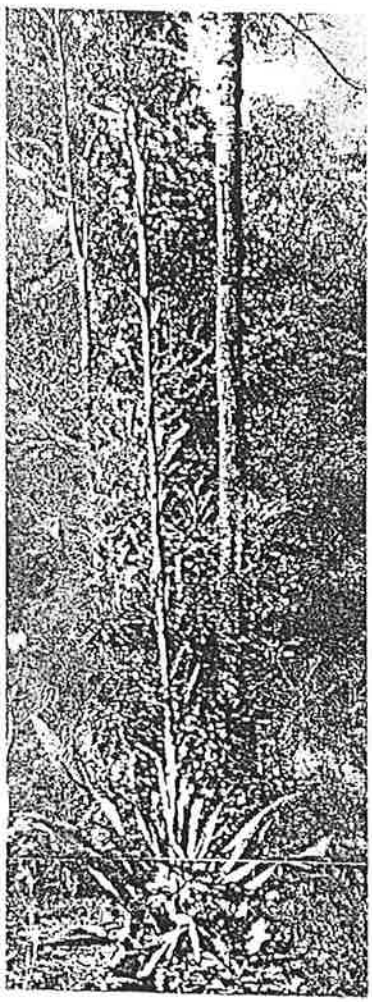
New member Arthur Rutter is purchasing 40 acres with his son near Bathurst in N.S.W. and will later plant out native food plants. They will let the group know what food plants they have selected and how they are progressing. He has Macadamia and Bunya Pines he grew from seed on the 1 acre block he lives on at present.

While it is highly unlikely that anyone today would want to destroy their Gymea Lily by eating either the roots or the immature flower stem as the Aborigines did, the plants are a striking addition to the larger garden. However, they are notoriously erratic flowerers. Brian Roach offers an interesting suggestion overleaf.

Gymea Silly

When Brian Roach isn't making eloquent closing arguments in the courts of our land, he writes a regular column in a district group newsletter of the Australian Plants Society. This approach to flowering Gymea lily might be of interest - even if there's possibly more "folklaw" than 'law' involved...

The experts in these things tell us that 'foliage contrast' is a cornerstone of good garden design. For native plant enthusiasts who are often collectors first and landscapers second, that design criterion is often achieved more by good luck than good management. Fortunately we're driven to adorn our gardens with kangaroo paw (*Anigozanthos*), *Patersonia* and the like and in doing so, provide that much needed contrast of strappy foliage. On a larger scale there's the swamp lily (*Crinum pedunculatum*) and the Gymea lily (*Doryanthes excelsa*). The latter must be rated as one of our most dramatic native plants when in flower. The soccer ball sized red 'flower' atop the 4 metre or so high stem is simply stunning. Little wonder it's one of the most readily recognized native plants in the wider community, even though it's sometimes confused with the waratah.



But while kangaroo paw, *Patersonia* and the swamp lily produce their floral beauty with annual regularity, not so the Gymea lily. I've searched for a word to describe its rate of flowering; intermittent, spasmodic or irregular all seem to overstate the position. Its reluctance to flower has been well illustrated in my own garden.

About 20 years ago I planted three. Until recently only one had flowered and that was in the late seventies. About 12 months ago I let out a whoop of glee when one of the two that had produced nothing, sent up a flower spike (shown in the photo at left). Even now the spent flower head still attracts attention. This 'recent' flowering started me thinking yet again about the dilemma. Surely there must be a way to trigger flowering. After all, it's nothing more than a plant's reproductive process. Why does the Gymea lily have to be so smug and disinterested in sex?

Somewhere in my mind's deep recesses I recalled reading or being told about a theory regarding how to stimulate flowering. I was prepared to try anything. Three or four months ago I put the theory into effect and crept up on my two that were arrogantly sitting there doing nothing. While I had some sympathy for the one that had flowered about 13 years ago (it was still recovering), it was outrageous conduct on the part of the other 20-year-older. I pulled apart the central section of the strappy leaves and dropped a rough, sandstone pebble, about the size of a 20 cent coin, into each one. I firmly pushed and prodded each pebble down with a stick until it would go no further. The theory is that the irritant of the pebble should set the reproductive process in motion.

And now - EUREKA!!! Both are sending up flower spikes. I reckon that's proof beyond reasonable doubt. Perhaps other growers can give the theory a try and let me know the results.

From "Blandfordia", the newsletter of the North Shore Group of the Australian Plants Society (NSW).

Potential for Seed Gum Production from *Cassia brewsteri*

RURAL INDUSTRIES RESEARCH & DEVELOPMENT CORPORATION

A report for the Rural Industries Research and Development Corporation

by *David Cunningham, Kerry Walsh and Eric Anderson*

July 2001

RIRDC Project No. UCQ-12A

Foreword

Seed galactomannans are widely used for a variety of industrial applications. The Australian market is supplied entirely by imports costing tens of millions of dollars per year. Carob, guar, and Senna gums are currently used to supply the bulk of this demand. However, inconsistency of supply and price has driven industrial users to search for alternative sources of supply.

Cassia brewsteri is a native tree of Central Queensland with galactomannans in its seeds. To assess the potential commercial use of this source, information was required on the gum quality, gum yield from seed, seed yield per hectare, and costs of production as well as the biology of the species.

This study has found commercial exploitation of this native legume species for gum production is not recommended at this time. However, the study has yielded useful data for the management of this species, in terms of its genetic diversity, distribution and habitat, phenology, propagation, and insect pests.

This project was funded from industry revenue which was matched by funds provided by the Federal Government.

This report, a new addition to RIRDC's diverse range of over 600 research publications, forms part of our New Plant Products R&D program, which aims to facilitate the development of new industries based on plants or plant products that have commercial potential for Australia.

Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at www.rirdc.gov.au/reports/
- purchases at www.rirdc.gov.au/eshop

Peter Core
Managing Director
Rural Industries Research and Development Corporation

Introduction

Cassia brewsteri

Cassia brewsteri (F.Muell.) F.Muell. ex Benth. (Caesalpiniaceae) is a small to medium tree endemic to Queensland, Australia. It has previously been identified as a species with potential as a multipurpose tree in agroforestry with possible utilisation as a source of sawn timber, fuelwood, fodder, or pharmaceutical products.

C. brewsteri wood is moderately dense (850 kg/m^3), with potential as fuelwood or a useful general-purpose hardwood and cabinet timber. The wood is pale pink with yellowish sapwood, open grain and no figure (Turnbull *et al.* 1986). The tree has the ability to coppice (Ryan and Bell 1989) and is not susceptible to termite attack in the field (Mitchell 1989).

Vercoe (1987, 1989) investigated the fodder value of *C. brewsteri* and 38 other Australian tree species. Dry Matter Digestibility (DMD) was estimated *in vitro* from chemical composition (e.g. crude protein level of 11.9%) by comparison with standard samples of species with known *in vivo* digestibility. The predicted *in vivo* DMD of 61.6% of *C. brewsteri* foliage was suggested to be adequate to provide subsistence forage. However, Vercoe noted that neither the foliage nor the twigs by themselves are adequate for the maintenance of sheep or cattle. The foliage is deficient in P and K whilst the twigs are deficient in crude protein, P, K and Na. Although *C. brewsteri* was recommended for further study no other research has been published on the feed potential of the tree.

Further, while digestible *in vitro*, the foliage and fruit are unpalatable to cattle. There is therefore no potential to develop the plant as a fodder crop in Australia. Indeed, as the tree produces root suckers after clearing, graziers consider it a weed in parts of central Queensland (Kleinschmidt and Johnson 1977, Scanlan and Fossett 1981). Agricultural studies of *C. brewsteri* have focussed on means of culling the plant (e.g. Back 1974).

The tree is useful as a shade tree and is reported to tolerate saline and alkaline soils (Doran *et al.* 1997). The floral blooms and deep green foliage make it an attractive ornamental species grown in Queensland, New South Wales and even Victoria under sheltered conditions (e.g. Francis 1981, Elliot and Jones 1982).

Positive alkaloid and negative anti-tumour tests of bark tissue extracts of *C. brewsteri* have been reported (Collins *et al.* 1990). No other pharmaceutical applications of *C. brewsteri* have been published.

Seed gums

Vegetable gums are becoming increasingly common in foods as they play important roles in both the manufacturing process and the mouthfeel or texture of the products. At present there are 38 additives classed as "thickener/vegetable gum" which have been approved for use in Australian food (ANZFA 1999). Sixteen of these are starches in various forms, nine are seaweed extracts, three are synthesised by bacteria and three are exudates from the branches of trees. Two of the vegetable gums are sourced from seeds and are known as seed gums or galactomannans.

Galactomannans are polysaccharides stored in the seeds of many plants of the legume family. These polymers of mannose and galactose are the functional components of seed gums. Carob (410) and guar (412) are the only seed gums currently approved for use in Australian food. Tara (417) and *Senna tora/obtusifolia* ('cassia') gum (no international additive code) are other seed gums which are used in foods overseas. *S. tora/obtusifolia* gum is used internationally and in Australia as a source of vegetable gums mainly for the pet food and textile industries. The product is currently exclusively made by Diamalt, and is marketed as 'cassia gum' or Diagum™ CS. It is made from the processed seed of both *S. tora* and *S. obtusifolia* collected from wild populations of these plants in India.

Seed gums are used in a wide range of food products and processes to thicken solutions, form an aqueous gel with other polysaccharides and prevent syneresis (the separation of liquid from a gel that is caused by contraction). The concentration of seed gum in foods varies, typical concentrations of galactomannans at 0.5-1.0% can achieve the same viscosity as starches at 4.0-6.0% (Fox 1997). Seed gums are commonly used in conjunction with carrageenan (407) from seaweed, or xanthan gum (415) from bacteria. The interaction between the seed gum and the other polysaccharide results in a stronger, more elastic gel, or more viscosity, than that produced using either gum by itself.

Some of the many foods containing galactomannans are ice cream, other milk-based products and desserts, mayonnaises, dressings, sauces and deep-frozen foods. Non-food uses of galactomannans include lubrication of oil drills, waterproofing of underwater explosives and as a flocculant in paper and textiles manufacturing (Dea and Morrison 1975, Coppen 1995).

One feature of galactomannans is that although they are comprised of simple sugars they are not digested by human enzymes. They are commonly used in diet or 'lite' foods since they add texture and a creamy mouthfeel to foods but pass through the body undigested. Guar has even been marketed as a diet tablet which swells in the stomach to alleviate the sensation of hunger. While this use may be of dubious health value, galactomannans do have some dietary value as soluble fibre (Lössl 1989). For diabetics, galactomannans also have the benefit of slowing the passage of food in the stomach thereby slowing the resorption of sugars such as glucose.

Seed galactomannans are competitively priced in comparison to other vegetable gums. They are unmodified natural products with some health benefits and are widely accepted by consumers. It is likely that their use in foods will continue to increase and that new food uses and products will be developed.

Many plants have been chemically analysed for their potential as a source of seed gums, results for over 120 species have been reported in the public domain. The two newest seed gums on the world market have not yet developed to the stage of crop production, but rather are currently harvested from wild *Senna* (in India) and tara (in Peru). *Senna tora/obtusifolia* gum is approved for food use in Europe, Japan and the USA (Hallagan *et al.* 1997). Tara is approved for food use in Europe (Borzelleca *et al.* 1993). At present, *Senna* gum is used only in petfoods in Australia while tara is not known to be used in any applications in Australia.

The world market for vegetable gums used in foods was estimated at US$10 billion in 1993 (Coppen 1995), the majority being the seaweed gums and the starches. Virtually all of Australia's requirements for vegetable gums are met by imports costing an estimated AU$40 million a year, carob gum imports alone cost some AU$10 million a year Australia-wide (CRCIPB 1996). The volume and value of guar and *S. tora/obtusifolia* gums imported into Australia is uncertain since many types of industrial gum are grouped under the same import code used for statistical records.

For decades Australian researchers have investigated the potential to produce seed gums locally. Of these gums, carob gum has the longest history of use in industrial processes. In fact, people have used the carob tree in various ways for around 4000 years. The whole pods are a nutritious stockfeed and the dried pulp (carob powder) is used as a flavouring, for example as a substitute for chocolate. A native of the Mediterranean, the carob tree is suited to many parts of Australia and was first planted here in the 1890s. The first experimental orchards were established in the 1970s in South Australia but as yet there has been no local harvests of carob seed for gum production. Guar (*Cyamopsis tetragonolobus*) has also been grown on a small scale in Australia for decades without developing as a commercial seed gum crop. Renewed interest in local sourcing has led to further trials of guar in Queensland with a view to local production and processing of seed gums. The feasibility of *Senna tora* gum production in Australia is the subject of a current RIRDC project.

Other RIRDC projects relating to seed galactomannan production in Australia include:

- Commercial viability of *Senna tora* gum production in Australia (NPP00-65)
- Carob agroforestry in the low rainfall Murray valley (UCS-14A)

Mesquite (*Prosopsis* species) is another potential source of seed gums. Research in Brazil went as far as pilot-scale processing of the seed for gum production but as yet there has been no mesquite gum traded on the world market. Mesquite was introduced to Australia in the early 1900s and has since become a serious woody weed, a factor which would probably impede its commercialisation here and in many parts of the world.

To assess the potential of *Cassia brewsteri* as a new seed gum crop information is required on a diverse range of factors. The aims of this project were to characterise *C. brewsteri* in terms of genetic diversity, distribution and habitat, reproductive phenology and the effects of an insect pest. The seed chemistry was characterised in terms of the level of a toxin, chrysophanic acid, the content and composition of galactomannan and the gelling interactions of the galactomannan with carrageen. An analysis of the commercial viability of the tree as a seed galactomannan crop in Australia was based on the new information and on comparison to similar crops.

Executive summary

Cassia brewsteri (*Caesalpiniaceae*) is a tree endemic to central Queensland. In this project, the potential of the plant as a source of seed gums (galactomannans) with industrial applications has been assessed in terms of genetic diversity, ecological requirements, phenology, propagation, insect pests, seed chemistry, gelling characteristics and economic viability. Randomly Amplified DNA Fingerprints were used to indicate the level of genetic variation within the Australian *Cassia*. Phenetic analyses supported the maintenance of the four native *Cassia* taxa at species level and the division of *C. brewsteri* into two subspecies. Ecological parameters associated with 124 sites of natural or cultivated occurrence were characterised in terms of soil and vegetation type, and potential cultivation areas predicted using the climate modelling software BIOCLIM. A broad area of eastern Queensland was shown to be suitable for the cultivation of the tree. Flowering and fruiting phenology was documented and found to allow for a confined harvest period (once per year). Seed germination was achieved most effectively by mechanical scarification while propagation by rooted cuttings was unsuccessful. Heavy predation of seed by *Caryedon serratus* (an exotic bruchid) was noted. The potential impact of this insect on the ecology of *Cassia brewsteri*, and the potential for infestation of *Arachis hypogaea* (peanut) is discussed. *Cassia brewsteri* seed galactomannan was demonstrated to be acceptable for use as a food gum. It is comparable to *Ceratonia siliqua* (carob) gum in gelling strength, and contains less than 10 ppm of the toxin chrysophanic acid.

Based on the yield data obtained in the above mentioned studies, preliminary estimates were made of return on investment from plantation culture of *Cassia brewsteri* for seed production. This analysis suggests that production is not economic at current yields and seed gum prices. However, production of this commodity has potential, and reconsideration at a future time is recommended. A pilot planting, perhaps installed as part of a revegetation exercise (e.g. minesite rehabilitation), would be a useful resource from which to base future assessments.

Making music with quandongs

Western Australia's native quandong, *Santalum acuminatum*, is renowned for its wide range of uses. Not only is the fruit and the kernel in the nut edible, the nuts have been used for chinese checkers and necklaces, and parts of the plant contain medicinal and veterinary substances.

Now another new use. In April, Leith Krakouer spotted our display of nuts at the Tree Crops Centre and told us that the quandong nuts are ideal for machine heads on guitars.

We were able to find him 6 matched nuts for this purpose. Leith promised to let us know how they performed. Anyone interested in this use can contact Leith on 9389 6080.

Growing an Edible hedge

By Jenny Awbery

Have you ever thought about growing an edible hedge instead of a fence? We have just planted one about 50 metres long, with the plants spaced at about a metre apart, with a watering line with drippers running the whole length. Hopefully the hedge won't need watering when it is well established. I did a bit of research on suitable plants. Obviously you want hardy plants, evergreen, that can be pruned hard but still remain leafy and thick. Below are some ideas for suitable plants, adapted from Daley's Nursery website.

While the majority of suggested plants were exotics, 2 particular species and lillypillies in general were recommended.

Sandberry (Austromyrtus dulcis)
A low shrub to 50cm high with 80cm spread. Leaves develop reddish shade which is apparent in new growth. Flowers are white, similar to tea tree flowers. Mauve edible fruits.

Magenta Cherry (Syzygium paniculata select)
Small to medium tree with a rounded crown. Densely foliaged. Leaves are shiny green. Coppery brown when young. Fragrant creamy white flowers held in dense clusters mainly in late spring. Decorative fruits are rose purple, oval and up to 25mm long.

Kitchen Paper Sandwiches... & Hibiscus Seeds

John Scarborough

After reading Warren and Gloria Sheather's article, in Native Plants January 2002, I tried their method of placing seeds between kitchen paper (with *Hibiscus* seeds as the filling). I waited, and waited but nothing happened. The seeds were from a beautiful tropical hibiscus we bought on the Gold Coast of Queensland in August 2000. It grows to about 2.5 m with very dark tri-lobular leaves and similar to *H. splendens*.

It flowered for a very short time but the flowers were large, beautiful, purple and with brilliant red centres—fortunately many seed pods were formed.

After my first experiment failed I tried the 'hot water treatment' and used the same sandwich treatment.

After only three days some of the seeds developed roots and after transplanting are now 2.5 cm tall. The original seeds were still 'sandwiched' and they also developed roots a week or so later—therefore I can highly recommend this method of germinating some of the larger seeds.

I used a plastic Chinese takeaway container to develop the seeds.

Material from 'Calgaroo' March 2002 newsletter of the Parramatta & Hills District Group

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Boab on bush tucker menu

For thousands of years, the fruit of the spectacular gnarled Kimberley boab tree has been a key part of the diet of Kimberley Aborigines. Now, the fruit is ready to launch on the national market.

Kununurra businesswoman, Melissa Boot, has a close association with the boab nut.

Three years ago the innovative craftswoman perfected a technique of crafting the nutshell into an array of decorative tableware, such as candles and goblets. Her 'Kimberley Boab Kreations' took off as a must-have souvenir for tourists to Kununurra.

Mrs Boot obtained a licence to collect the seedpods from the bush. "Using the seedpod, I was getting a lot of fruit build up," Mrs Boot said. "I really wanted to utilise the whole fruit."

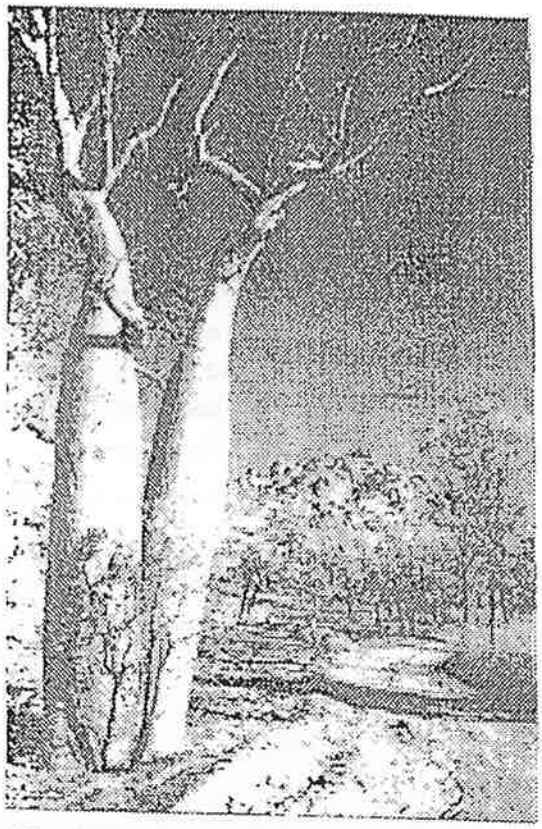
Knowing that the fruit was a popular bush tucker, Mrs Boot began to explore options for its use.

"Years ago in a local restaurant I had barramundi cooked in boab fruit with roasted boab seeds on top," she said. "I'll never forget it, it was delicious. Because it is so citrusy, I figured it needed to be sweetened."

By mixing the fruit with chocolate, Mrs Boot combined the sweetness of chocolate with the tang of the boab, and created the quintessential Kimberley chocolate taste sensation. It was an instant hit.

"I brought it out at an exhibition at the Diversion Gallery in Kununurra two years ago. I did platters in dark, milk and white chocolate. Everybody loved it. I had a lot of people asking me then if they could buy some."

With this new business idea in mind, Mrs Boot sought recognised of the fruit by the Australia New Zealand Food Authority.



Kimberley boab trees are being harvested for nuts by Melissa Boot, of Kununurra

"I knew if I didn't get recognition by the food authority I wouldn't be able to market it anywhere but the Kimberley," she said.

The ANZFA came through, recognising the boab fruit as a non-traditional food in February.

The fruit can now be marketed anywhere within Australia and New Zealand, with Melissa Boot's Boab Chocolate leading the charge. The handmade chocolates are produced in a commercial kitchen in Kununurra and can best be described as 'very decadent'.

/ Cont'd p. 13.

Peppermint Gum: *Eucalyptus dives*

Distribution

Grows naturally in the region of the Great Divide, Central NSW and Australian Capital Territory.

Description

The leaves of this small species have a pronounced peppermint aroma and flavour. Used as a dried, ground powder, or whole for infusion.

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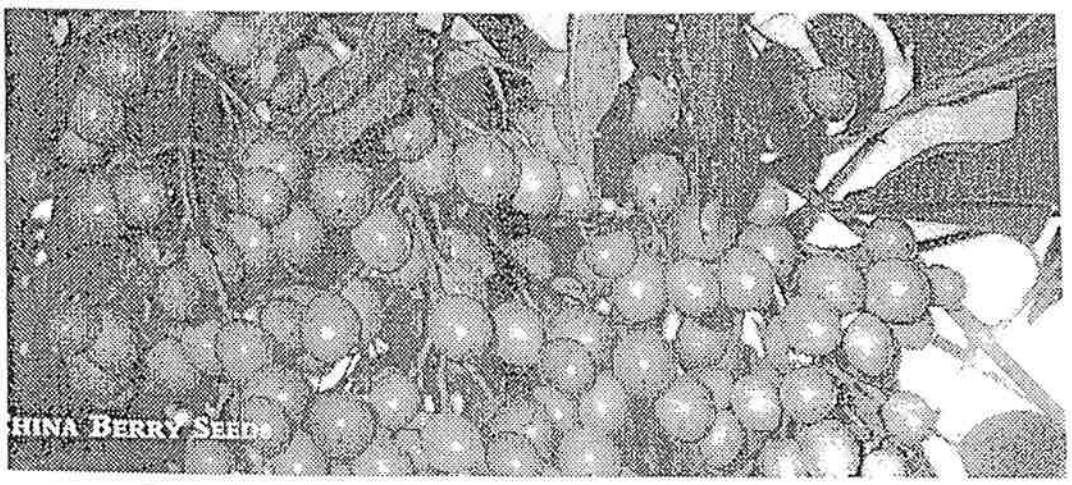
Prospectuses may be good sources of information

It is the policy of WANATCA and the Tree Crops Centre not to comment on the merits or otherwise of share prospectus offerings. Even so, these prospectuses can be valuable sources of information. In the past, some prospectuses contained exaggerated claims, but these have been much less in evidence in recent years because of stringent examination by regulatory bodies.

A recent prospectus which has much of interest has been produced by Exotic Timbers of Australia (ETO) and its associate Integrated Oil Extractions N.T. Ltd (IOE). It covers projected plantings at Batchelor, south of Darwin, in the Northern Territory.

Four crops are covered: Neem, Indian Sandalwood, Chinaberry, and Central American Mahogany. The latter (*Swietania macrophylla*) is intended for cabinet timber, but the other three are intended for extraction of products.

Chinaberry (*Melia azedarach*) is our familiar Cape Lilac or White Cedar, what is of



Fruits of Melia azerach (Chinaberry, Cape Lilac, White Cedar)

interest here is that it is being grown to extract veterinary chemicals—as far as I have noticed, this is the first commercial planting with this projected use. Its close relative Neem is well known for its medicinal and insecticidal properties and its safety towards mammals. Indian Sandalwood is the traditional source of sandalwood products.

Supercritical Fluid Extraction

Another point of great interest is the project's intention to use a relatively new and efficient process for extraction called Supercritical Fluid Extraction (SFE). SFE is essentially based on carbon dioxide.

Carbon dioxide, CO_2, is of course a gas at ordinary temperatures, and many will be familiar with its solid form, dry ice. At ordinary air pressure (around 1 atmosphere), carbon dioxide has no liquid form, but under high pressure (say 80 atmospheres) it does.

Liquid CO_2 is an excellent solvent at ordinary temperatures, and this gives SFE several important advantages. The material from which extracts are to be made can be put under pressure with CO_2, which dissolves the wanted oils or other materials at low temperature. Conventional extraction by steam distillation works at around 100 °C, and this higher temperature can degrade some extracts.

After the SFE process, the liquid CO_2 containing the extracts can be drained off from the solid base material, and the pressure reduced down to normal. The CO_2 changes back to a gas, leaving the extracts behind,

/over

ready for use and uncontaminated by chemical solvents, thus avoiding a problem which can occur with these.

A sample from the prospectus follows.
— *David Noel*

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China Berry (Melia azedarach)

China Berry is a fast growing tree belonging to the Meliaceae family of plants. It is native to the rainforest of Northern coastal New South Wales, subtropical and tropical Queensland, New Guinea and the Northern Territory as well as being planted as a street tree through the drier parts of Australia, which shows its adaptability.

Striking and colourful, it has been widely prized as an ornamental shade tree because of its large compound leaves, its distinctive clusters of lilac-coloured flowers and its round yellow fruits.

It also has many of the biocidal properties that can be derived from Neem.

The biocidal property of meliaceous plants (China Berry and Neem are both of the meliaceous plant family) has been known for quite some time.

Testing by Supercrit for ETA has presented an opportunity to provide a premium grade oil for Australia and overseas.

The oil extracted from the China Berry will be used as a Veterinarian chemical. IOE intends this will be achieved in a joint venture with the Supercrit consortium based in Sydney and the price of the oil is expected to be approximately AUD$50 per litre.

As with Neem and Sandalwood oils, there are no synthetics currently available. ¥

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Cont'd from p. 11 /

The fruit itself has a high nutritional value, with CALM analysis [from the Conservation & Land Management Department] showing a vitamin C content ten times that of an orange, as well as being high in protein, calcium, potassium.

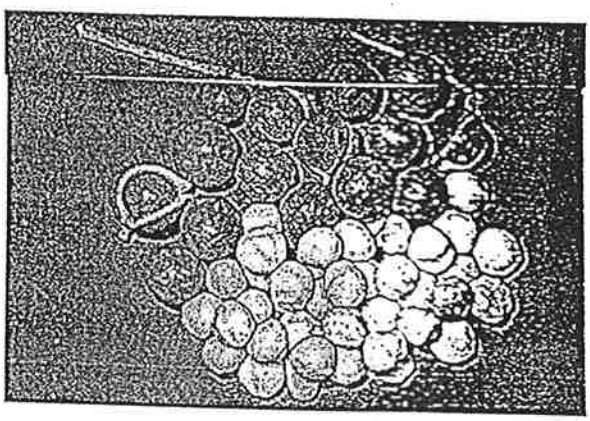
It also contains thiamine, riboflavin and iron, and is less than five per cent fat.

Mrs Boot will be visiting Perth from the Kimberley in early April, to launch the gourmet delicacy in a variety of markets. "I'd like to see it in health food shops, and chocolate sections of gourmet shops. I'd really like to see it in restaurants that sell different and unusual foods," Mrs Boot said.

Mrs Boot said she knew of adventurous cooks experimenting with seafood in boab batter, boab sauce and roasted boab seeds.

— *Tess Nekrasov*

Macadamia Nut: *Macadamia integrifolia*



A Western Australian producer of Sandalwood oil from Santalum spicatum species produces and supplies Sandalwood Spicatum oil at AUD $540 per litre. ¥

Native Currant: *Acrotriche depressa*

Distribution

In small pockets of South Australia and Victoria; particularly on Kangaroo Island, Barossa Valley, Clare Valley, Adelaide Hills.

Description

Fruits are taken from a small prickly shrub. They offer a moderate source of vitamin C and are red in colour. Flavour is best when mixed with sugar to remove the acidity.

¥

STOP PRESS:

More apologies I'm afraid. Although the first 4 pages or so of this newsletter have been in my computer since February, family and work commitments have wreaked havoc with any leisure time I might have thought I was going to have in order to complete it, and odd short periods snatched at irregular intervals don't lend themselves to continuity of effort. So, at least I have managed to complete it, and will do my best to make up the backlog as I am able. Thank you all for your patience. However, should anyone like to try their hand at producing an issue, I'd love to hear from you. In the meantime, "The Dreaded Book" Rocky SGAP has been struggling with for so long limps on. Once that's out of our hair perhaps we will not be spread so thinly, and things will get back to something approaching normality. Thanks again for your understanding.

Lenore.

BUNYA NUT: *Araucaria bidwillii*

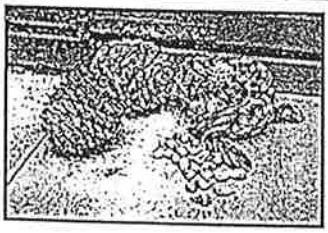
Distribution:
Occurs naturally in southern Queensland and northern N.S.W. Grows successfully in many other parts of Australia, as far north as Rockhampton.

Description:
A tough woody shell contains a large nut similar to a pine nut in appearance. Each nut is enclosed in a fibrous casing or valve, many of which form the large green female pine cone. These huge cones can be the size of a football and weigh well in excess of 5 kg. The meat is high in starch content its texture is very similar to chestnuts with a subtle pine nut/macadamia flavour.

Germination:
Bunya seeds are very easy to germinate if fresh...once old they become much harder. Brian Walters uses 2 methods.

Either insert them pointy end down in good quality potting mix so that the top is just poking through the soil and if fresh they will begin to germinate in a matter of days. The second way is to place the seeds in a very shallow tray of water with the pointy end just in the water. After a few days a root will emerge. These can then be placed in potting mix as above. Once in the potting mix just keep moist; they will rot quickly if too wet.

Over the next few months the seeds will fall off leaving a little tuber in the soil. Around 9 or 10 months later a new shoot will emerge from the top of the tuber growing up the remains of the first root which will now be shrivelled up, to emerge as the first shoot of the young tree.



Bunya cone and seeds
Photo: Jan Sked