

2. Presentation skills

Stakeholders and Impact

[What is a “stakeholder”?]

Give me examples of your research

Who are the *stakeholders* for your research?

How will you ensure that your research will have *impact* on your stakeholders?

You have done your research and now you want to present it to an international audience at a meeting in somewhere exotic; let's say ...

.... **Vrdnik**

but first ...

Did you know?

- ❖ Student PhD researchers are **special!**
- ❖ Do not waste the (rare) opportunity of going to an international scientific meeting **to network!**
- ❖ A **scientific meeting** is an opportunity for you to have *impact* on some of your stakeholders.
- ❖ An **international** scientific meeting is an opportunity for you to have *impact* on your **foreign** stakeholders.

A poster can be an excellent way to have *impact* on your **scientific** stakeholders, but only if you design it to have **most impact!**

I'll now give some information on poster presentations.

Assuming that a poster consists of these components:

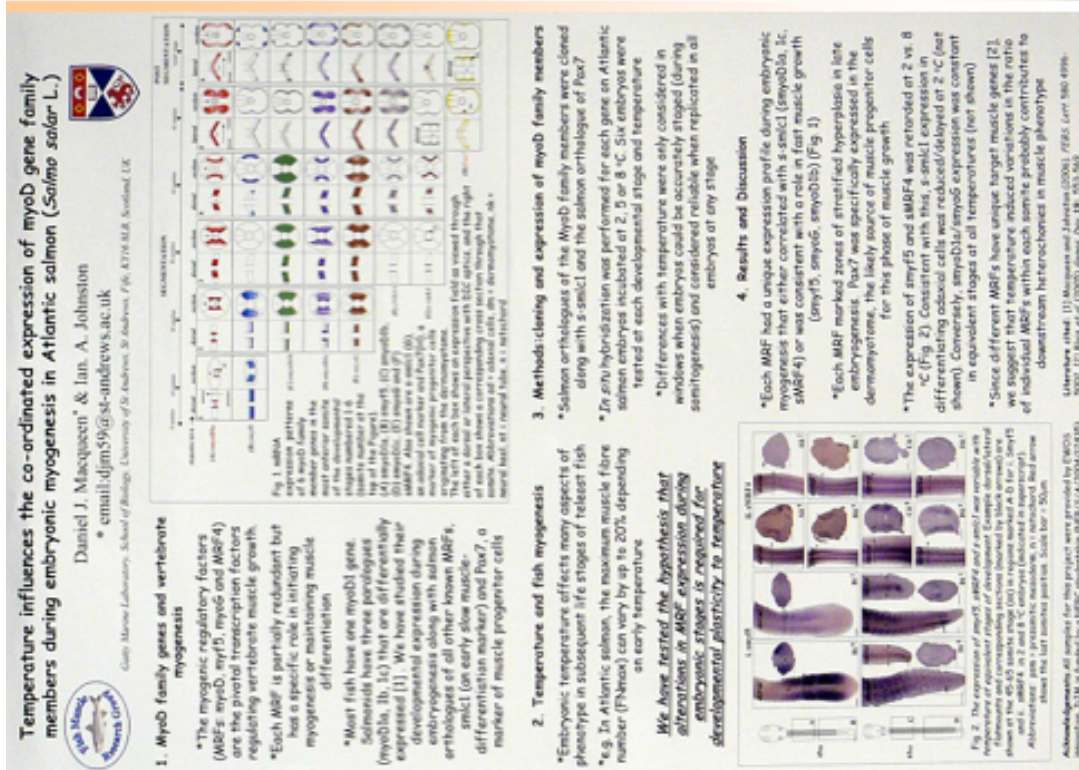
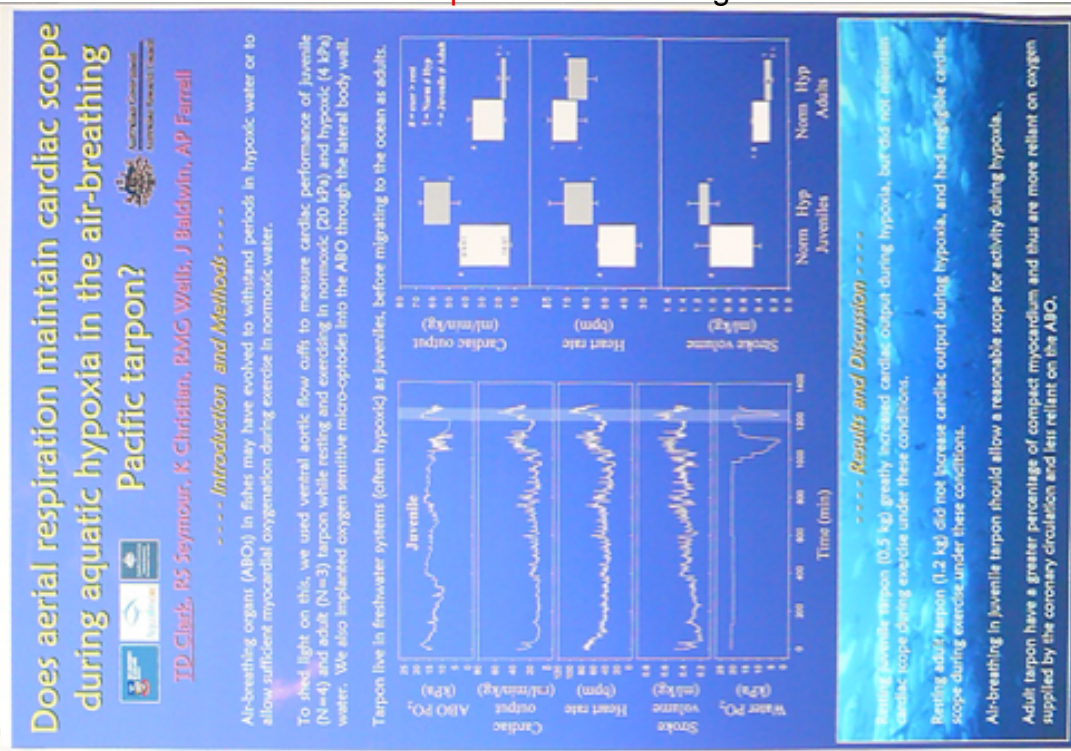
- ❖ A title
- ❖ A summary
- ❖ Background information
- ❖ Description of the research methods
- ❖ Results of the research
- ❖ Discussion of the findings
- ❖ Conclusions

Which do you consider to be the most important?

- ❖ Title and **overall appearance eye-catching**, to make the passer-by stop to read it. If no one stops, you may as well be **invisible - impact zero!**
- ❖ **Conclusion** is the most important information.

Now let's look at some poster examples

OK, look at these 8 posters. What are your comments on these two?
 Title easy to read. No summary. Colour scheme makes text hard to read.
 Text across full poster width. No contact information!. Most important information at the bottom of the poster. Acknowledgements as icons.



No summary. Title boring and too small. No take-home message. Text a bit difficult to read and too dense. Most important information at the bottom of the poster.

Summary present but long. White text on brown makes it hard to read. A wall of text makes it impossible to read easily. Too many References. No Acknowledgements. No contact email address.

The Hydropreference of Adult *Folsomia candida* and *Sminthurus curviseta* Investigated at Realistic Humidities
Jakob Denggaard Frederiksen, Hans Møller and Mark Baylley
Institute of Biological Sciences, University of Aarhus, DK-8000 Aarhus C, Denmark

Abstract
The hydropreference of adult *F. candida* and *S. curviseta* were investigated at realistic humidities (RH) of 50%, 60%, 70%, 80%, 90% and 100% in a choice test. The results were compared to a 50% RH choice test. The results showed that both species showed a preference for higher humidities, but *F. candida* showed a stronger preference for higher humidities than *S. curviseta*. The results are discussed in relation to the hydropreference of these species in natural habitats.

Introduction
The hydropreference of soil-dwelling mites is an important factor in their distribution and abundance. The hydropreference of *F. candida* and *S. curviseta* were investigated at realistic humidities (RH) of 50%, 60%, 70%, 80%, 90% and 100% in a choice test. The results were compared to a 50% RH choice test. The results showed that both species showed a preference for higher humidities, but *F. candida* showed a stronger preference for higher humidities than *S. curviseta*. The results are discussed in relation to the hydropreference of these species in natural habitats.

Materials & Methods
The hydropreference of adult *F. candida* and *S. curviseta* were investigated at realistic humidities (RH) of 50%, 60%, 70%, 80%, 90% and 100% in a choice test. The results were compared to a 50% RH choice test. The results showed that both species showed a preference for higher humidities, but *F. candida* showed a stronger preference for higher humidities than *S. curviseta*. The results are discussed in relation to the hydropreference of these species in natural habitats.

Results
The results showed that both species showed a preference for higher humidities, but *F. candida* showed a stronger preference for higher humidities than *S. curviseta*. The results are discussed in relation to the hydropreference of these species in natural habitats.

Conclusions
The results showed that both species showed a preference for higher humidities, but *F. candida* showed a stronger preference for higher humidities than *S. curviseta*. The results are discussed in relation to the hydropreference of these species in natural habitats.

BRASSINOSTEROIDS PROTECT PLANTS AGAINST HEAT STRESS
A. Gaidarov, M. R. Bekker, J. Shmida, M. Lewin, E. Shtern, S. Neftci

Abstract
Brassinosteroids (BRs) are plant growth regulators that play a key role in plant growth and development. BRs are known to be involved in plant responses to various abiotic stresses, including heat stress. In this study, we investigated the effect of BRs on plant growth and development under heat stress. The results showed that BRs significantly improved plant growth and development under heat stress.

Introduction
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Materials & Methods
The effect of BRs on plant growth and development under heat stress was investigated. The results showed that BRs significantly improved plant growth and development under heat stress.

Results
The results showed that BRs significantly improved plant growth and development under heat stress. The results are discussed in relation to the protective effect of BRs against heat stress.

Conclusions
BRs significantly improved plant growth and development under heat stress. The results are discussed in relation to the protective effect of BRs against heat stress.

Unusual layout. Nice clear title. Take-home message in the title. Text on green is too small. Most important information at the bottom of the poster!

The POLARIS gene is essential for correct ethylene signalling in *Arabidopsis thaliana*

Saher Mehdi and Prof Keith Lindsey
The Integrative Cell Biology Laboratory, Durham University

1. Introduction

Hormone signalling systems coordinate the plant growth and development through a range of complex interactions. Significant progress has been made in understanding the molecular mechanisms of auxin and cytokinin signalling in the model plant *Arabidopsis thaliana*. However, we still have an incomplete picture of the molecular mechanisms of root formation and growth control and of how hormones interact to elicit the diverse developmental pathways found in plants. The POLARIS (PL3) gene encodes a 38 amino acid peptide that is required for correct root growth and vascular patterning in *Arabidopsis* (Gannon et al., 2002). Recently, we identified PL3 as a negative regulator of ethylene signalling (Cheng et al., 2008).

2. Aim

The aim of this project is to investigate the molecular mode of action of PL3 and its role in the ethylene signalling pathway to regulate root development in *Arabidopsis thaliana*. This involves:

- Transpositional analysis of the expression of major ethylene signalling genes in *pl3* and *pl3* transposon (*PL3DS*), to identify the downstream target
- Characterisation of root pathways in *pl3* by introduction of root cell marker lines into the *pl3* mutant.

3. Hypotheses

- PL3 may interact with the ethylene signalling pathway (e.g. ETR1, ETR2, ERS1, ERS2 and EIN4).
- The *pl3* is essential for auxin and cytokinin signalling in the root tip. The *pl3* mutant has defective auxin transport and accumulation (Figure 3) and auxin distribution in the root tip. Therefore, we are generating *pl3*, *ERS1* and *ERS2* triple mutants to test our hypothesis that PL3 may interact with the ethylene signalling pathway to regulate auxin distribution in the root tip.
- *pl3* shows altered regulation of ethylene signalling genes. The *pl3* mutant shows up-regulation of the ethylene signalling genes, *GEF2* (Figure 1) and *ERF1* (Figure 2), which indicates that PL3 is a negative regulator of ethylene responses.

4. PLS and Ethylene signalling

- The PLS gene regulates ethylene responses. Ethylene signalling is the key determinant of the shoot: root architecture of the plant.

5. Work in progress

- **At least two hybrid assays** - The GUS1 gene-based reporter system is being used for the *pl3* mutant. The *pl3* mutant can contain a GUS1 gene under the control of the *pl3* promoter. The GUS1 gene is expressed in the root tip. The GUS1 gene is also expressed in the root tip of the *pl3* mutant. The GUS1 gene is also expressed in the root tip of the *pl3* mutant. The GUS1 gene is also expressed in the root tip of the *pl3* mutant.

Urban-Rural Inequalities in Access to ART: Results from Facility-based Surveys in South Africa

H Schneider, M Moshabela, D Blaauw, T Barnighausen, N Chimbindi & S Cleary on behalf of the REACH project*

Introduction

Sub-Saharan Africa has the largest proportion of anti-retroviral therapy (ART) access in the world. However, access to ART is unevenly distributed across the region, with urban areas having higher coverage than rural areas. This is due to a number of factors, including:

- Limited availability of health facilities in rural areas.
- Limited availability of health workers in rural areas.
- Limited availability of health services in rural areas.
- Limited availability of health services in rural areas.

Methods

The study was conducted in two sites, urban and rural, in South Africa. The study included a cross-sectional survey of ART users and a cohort study of ART users. The study included a cross-sectional survey of ART users and a cohort study of ART users. The study included a cross-sectional survey of ART users and a cohort study of ART users.

Results

The study found that ART coverage was significantly higher in urban areas than in rural areas. This was due to a number of factors, including:

- Limited availability of health facilities in rural areas.
- Limited availability of health workers in rural areas.
- Limited availability of health services in rural areas.
- Limited availability of health services in rural areas.

Conclusions

The study found that ART coverage was significantly higher in urban areas than in rural areas. This was due to a number of factors, including:

- Limited availability of health facilities in rural areas.
- Limited availability of health workers in rural areas.
- Limited availability of health services in rural areas.
- Limited availability of health services in rural areas.



Working Fathers in Europe: Earning and Caring?

Alison Smith
 University of Edinburgh, School of Social and Political Studies



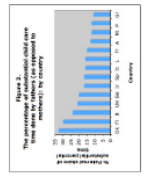
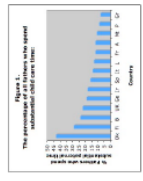
Background
 A common conception of modern fatherhood is that there has to be a trade off between a father either being a financial provider or an active carer. Drawing on an analysis of large-scale European survey data, which is both longitudinal and comparative, this study explores the possibility that a father's success and commitment as a financial provider does not necessarily prevent a similar commitment to the caring and nurturing aspects of fathering (Marsiglio 1995).
 In this study, earnings of co-residential fathers and non-fathers are compared in order to examine whether fathers who spend more time looking after their children work fewer hours and earn less than other fathers and non-fathers, for the period 1994 to 2001, in fourteen European countries.

Combining Parental Care and Parental Financial Commitments
 As a man enters into parenthood, we might expect to see changes in his ability and willingness to do paid work, as well as changes to the effort and time he devotes to domestic work. A father's labour market outcomes are expected to differ from those of a non-father. He might be more inclined to work longer hours and be more ambitious as part of an effort to better provide financially for his new family, thus offsetting the increased costs of becoming a parent. Conversely, he might reduce his working hours and place greater emphasis on his domestic life as part of an effort to spend more time caring for his family.
 Two such competing strategies of co-residential fatherhood are found in the literature, namely that of the "good provider" and that of the "active father" (Kaufman and Uhlenberg 2000). This study looks beyond this simplistic dichotomy of fathers who provide versus fathers who care and considers whether some fathers actually manage to do both.

Study Aims and Methods
 The findings are based on analyses of panel data from the European Community Household Panel (ECHP). The ECHP is a particularly unusual data source since it is both longitudinal and comparative. Through repeat annual interviews, this longitudinal survey follows men in the context of the households within which they live, for the eight years from 1994 to 2001. The survey provides information on time spent by respondents looking after children as well as rich socio-economic contextual information. The analysis focuses on a representative sub-sample of all working men, employed and self-employed, across the European Union. Results are reported for resident social fathers, i.e. men who are living in a household with dependent children for whom they care, regardless of their legal or biological connection to the child.
 One of the limitations of much survey-style research is that it gives a snapshot of the social context being studied at one time only. Using only cross-sectional data it is not possible to track changes over time or to identify the cause-and-effects of, for example, becoming a father. Longitudinal panel studies are an attempt to respond to this problem. In such studies, the same sample of the population is surveyed at regular intervals, so that any changes over time can be measured and reported. By observing the same people each time, we can be sure that any changes we observe are not due to differences between these individuals but rather to the individuals themselves having changed over time in relation to the phenomena we are trying to measure, in this case, becoming a father.

Father Friendly Policy Index
 Father-friendly policy enables fathers to spend more time looking after their children
 Fathers in countries with more father-friendly provision generally spend more paternal time (with exceptions)
 Gender-neutral "parental" policies are less effective than policies specifically targeted at fathers
 For more see: Smith, A. J. and Williams, D. (2007) "Father Friendly Provision And Paternal Time Across Western Europe", *Journal of Comparative Policy Analysis* 9 (3) (forthcoming).

Key Findings
 While mothers across Europe still spend more time caring than fathers, there are considerable cross-national differences in father's participation in childcare.
 Fathers in the Nordic countries spend the most childcare time and fathers in Greece and Portugal spend the least.
 Differences contextualised using the Panel (for 1996).
 Adjusted childcare time is work-adjusted (hours per week) and children are under six years old.
 The countries for which data are available are: Austria (A), Belgium (B), Denmark (DK), France (F), Germany (G), Italy (I), Luxembourg (L), The Netherlands (NL), Norway (N), Sweden (S), and United Kingdom (UK).



There are considerable gender gaps in the amount of time parents spend looking after their children. Fathers spend between 11% and 33%, in Greece and Denmark respectively, of the total amount of substantial parental childcare time.
 On average, fathers across Europe earn more per hour than non-fathers, but they do not work longer hours.
 In the couple of years prior to becoming fathers, fathers-to-be are already earning more per hour than other non-fathers.
 On average, fathers who spend more time with their children also earn more per hour and work fewer hours than those fathers who spend less time with their children.

Policy Implications
 That fatherhood and labour market outcomes are intrinsically linked has significant policy implications:
 Reducing the number of hours that a father works, whilst increasing his hourly wage rate, creates a father who is both a good financial provider and an active carer.
 Pre-fathers and other non-fathers are not the same in terms of their labour market outcomes. Becoming a father is thus, labour market outcomes appear to be linked to male fertility.

For more:
 European Fathers and the Time they Spend Looking After Their Children
 Contact:
 Alison Smith
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 Web: <http://www.sps.ed.ac.uk/staff/alison%20smith.htm>

Acknowledgements
 This poster is based on work funded by the ESRC and adapted for a research briefing with support from the Centre for Research into Families and Relationships, University of Edinburgh.
 References:
 Kaufman, G. and Uhlenberg, P. 2000 "The Influence of Parenthood on Work Effort of Married Men and Women", *Social Forces* 78 (3): 691-696.
 Marsiglio, W. 1996. *Fatherhood: Contemporary Theory, Research, and Social Policy*. London: Sage.

Nice clear title. Clear simple layout. Nice section headings. Take-home message. A bit too much text. Figure is too small. No summary.





Why Visual Cues of Portion Size May Influence Intake

Brian Wansink, Jill North, and James E. Painter

Abstract

Many studies have shown portion size influences intake. Why does it? We propose that portion sizes increase consumption because they suggest larger consumption norms. That is, the amount of food in a bowl may implicitly suggest what might be construed as a "normal" or "appropriate" amount to consume. If some is left, we'll keep eating. To investigate this, we examine participants who are given soup bowls that refill themselves. These individuals consumed 73% more soup, but did not realize they had done so.

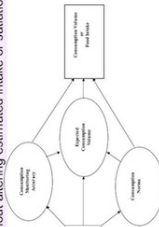
People use their eyes to determine how much they eat. This biases their intake and can lead to overconsumption.

Results

- 1. Participants who were unknowingly eating from self-refilling bowls ate 73% more soup (14.7 ± 8.4 vs. 8.5 ± 6.1 oz; F_{1,52}=8.99; p<.01) than those eating from normal bowls. This was unaffected by BMI.
- 2. Despite consuming 73% more, they did not believe they had consumed more, nor did they perceive themselves as more satiated than those eating from normal bowls.

Introduction

Using self-refilling soup bowls, this study shows that visual cues related to portion size ("Is my bowl empty, yet?") can influence intake volume without altering estimated intake or satiation.



Methods

- Fifty-four participants (Body Mass Index of 17.3-36.0 kg/m²; aged 18-46) were recruited to participate in a study involving soup.
- The experiment was a between-subject design with two visibility levels: 1) an accurate visual cue of a food portion (normal bowl) versus 2) a biased visual cue (self-refilling bowl). The soup apparatus was housed in a modified restaurant-style table in which two of four bowls slowly and imperceptibly refilled as their contents were consumed.
- Outcomes included intake volume, intake estimation, consumption monitoring, and satiety.

Nice clear title
 Clear simple layout
 Nice use of colours
 A short clear abstract
 Take-home message
 and not at the bottom.
 No email addresses
 Contact information at the website.

Conclusions

- 1. First, the amount of food on a plate or in a bowl provides a visual cue or consumption norm which can influence how much one expects to consume and how much one eventually consumes.
 - 2. Second, the amount of food on a plate or bowl can influence intake by leading a person to not monitor their consumption.
- The Bottom Line**
- We over-rely on visual consumption cues when determining how much to eat. We can also use this insight to reduce intake.
- Using smaller than normal-size plates, bowls, and glasses may lead us to believe we have enjoyed a full portion.
 - Repackaging bulk foods into smaller zip-locked portions can provide the visual that cue we (or our children) have eaten a full serving of a snack.
 - Leaving empty wine bottles on the table may remind guests they have had enough to drink; leaving empty chocolate kiss wrappers out in the open may remind us of how much we've eaten.



Selected References:

- Ello-Martin JA, Roe LS, Meehige JS, Vail DE, Robinson TE. Increasing the portion size of a unit food increases energy intake. *Appetite*. 2001;37(2):153-60.
- Fildes R, Rolls BJ, Blich L. Children's bite size and intake of an entrée are greater with large portions. *American Journal of Clinical Nutrition*. May 2003;77(5):1164-1170.
- Pudel V, Oetting M. Eating in the Laboratory: Behavioral Aspects of the Positive Energy Balance. *International J. of Obesity*. 1977;1:389-386.
- Rolls BJ, Morris EL, Roe LS. Portion Size of Food Affects Energy Intake in Normal-Weight and Overweight Men and Women. *American Journal of Nutrition*. 2000;111(2):253-260.
- Wansink B. Can package size accelerate usage volume? *Journal of Marketing*. Jul 1996;60(3):1-14.
- Wansink B. Environmental factors that unknowingly influence the consumption and intake of consumers. *Annual Review of Nutrition*. 2004;24:455-479.



For more information go to:
focpsychology.cornell.edu

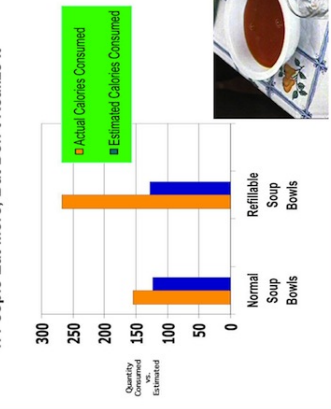
2. People Don't Pay Attention to How Much They Eat

	Accurate Visual Cue (Normal Soup Bowl)	Biased Visual Cue (Self-refilling Soup Bowl)	Mean Visual Cue (oz)	Mean Intake (oz)
Actual Consumption (oz)	14.7 ± 8.4	21.5 ± 10.5	14.7 ± 8.4	21.5 ± 10.5
Estimated Consumption (oz)	14.7 ± 8.4	14.7 ± 8.4	14.7 ± 8.4	14.7 ± 8.4
Estimated Consumption Error (%)	0	-38	0	-38
Estimated Consumption Error (SE)	0	1.5	0	1.5
Estimated Consumption Error (95% CI)	0	1.5 to 3.0	0	1.5 to 3.0
Estimated Consumption Error (p-value)	0	<.001	0	<.001

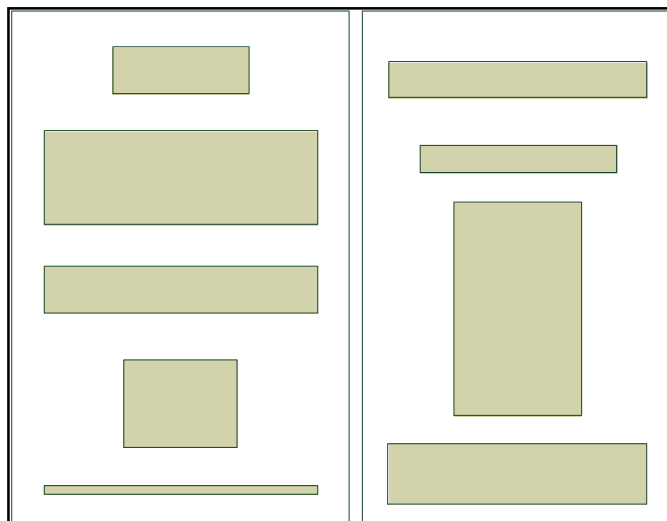
Consumption Monitoring

"I certainly paid attention to how much I ate"
 "I barely or not at all took the 'how much' cue"
 "I barely or not at all took the 'how full' cue"
 "I barely or not at all took the 'how empty' cue"
 "I barely or not at all took the 'how full' cue"
 "I barely or not at all took the 'how empty' cue"
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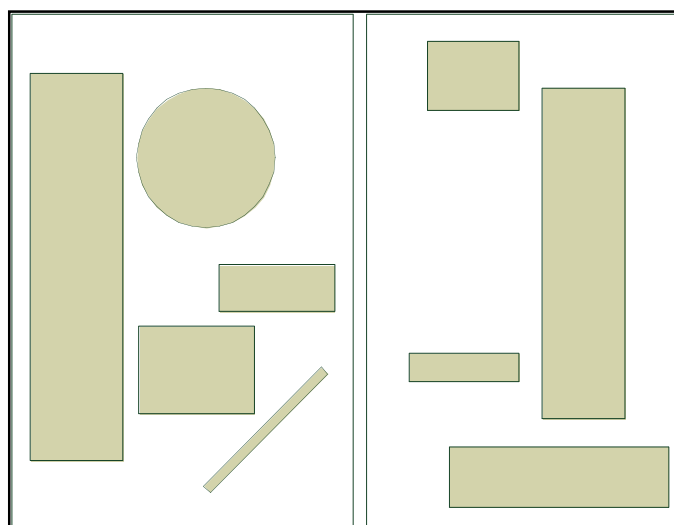
1. People Eat More, But Don't Realize It



Examples of poster layouts:



Symmetric balance



Asymmetric balance



Radial balance

So, lets summarise the best points:

- ❖ Title - Eye-catching to make someone stop to read on (It could be in the form of a take-home message. A question is also good for getting people to stop.)
- ❖ Layout - Uncluttered, clear, simple, maybe with boxes for text and graphics
- ❖ Boxes - Numbering them makes it easy to follow the sequence
- ❖ Boxes look nicer with rounded and not square corners
- ❖ Summary - A brief summary at the top often helps
- ❖ Text - Use a simple font (like Arial) and large font size (ideally no less than 24 point)
- ❖ Text - Keep it simple and brief, with short sentences
- ❖ Don't put green text on a red background or vice versa because of red-green colour blindness
- ❖ Results - These are better shown graphically than in tables

Summarising the best points (2):

- ❖ Conclusion - Include a simple take-home message and try to avoid putting this at the bottom!
- ❖ Colours - Use coloured borders to break up a wall of text, but don't make colours too intrusive (in the way)
- ❖ Main points - Coloured boxes will attract the reader's attention to the main points
- ❖ Background - Make sure any background image does not intrude (get in the way) too much on the story
- ❖ Adding your photos will help people to recognise you
- ❖ Remember to include your e-mail addresses
- ❖ Remember to include Acknowledgements, especially of funding sources

Summarising the best points (3):

Other points:

- ❖ Try to leave empty space so that the content stands out to the reader
- ❖ Don't abandon your poster at any time during the poster viewing session
- ❖ Remember to bring adhesive tape or "Blue tack/Buddies" to fix your poster in case the organisers don't have anything to hand
- ❖ Copies - It is helpful to bring a number of A4 copies as handouts
- ❖ Get yourself some business cards to hand out to people
- ❖ Note that a poster abstract, usually published for the conference, can contain extra detail that can be omitted from the poster itself.

To finish this session, here is a selection of posters prepared by my PhD students all describing the same piece of research

These demonstrate how many different ways there are to describe the same information!

Stages of Development and Changes in Chemical Composition of Three Apple Varieties

Vukojević A, Kočović D, Rudić J, Jwaid S, Pokimica B, Mastovarić I*
 * imastovari@usa.net

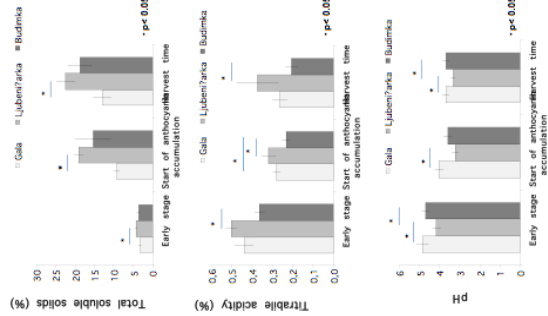


INTRODUCTION :

Serbia has a rich collection of traditional varieties, of which one of the most popular locally is Budimka, and another, Ljubenicarka, notable for its red flesh, many apple farmers are gradually replacing the native apple cultivars with varieties that are increasingly capturing market share internationally, such as Gala. However, little work has been done to characterize apple varieties grown in Serbia, which is a major producer in Southeast Europe, exporting about 1.5% of its apple production. Therefore, the special emphasis in this study was made of the following components: total soluble solids (TSS), titratable acids (TA) and pH value throughout the ripening process of three varieties grown in Serbia, to establish whether local Serbian apple varieties show, in this capacity, any significant difference when compared to 'Gala' respectively and between one another and would that difference could help stimulate their commercial production if marketed more effectively.

RESULTS:

Total soluble solids, titratable acidity and pH in Gala, Ljubenicarka and Budimka apple cultivars during the season.



Overall, it is confirmed that Ljubenicarka and Budimka might be a good traditional alternative for well-known apple cultivars considering TSS, TA, and pH content.

Acknowledgment:

This work is supported by a grant from Ministry of Education, Science and Technological Development of Republic of Serbia

Stages of Development and Changes in Chemical Composition of Three Apple Varieties

Vukojević A, Kočović D, Rudić J, Jwaid S, Pokimica B, Mastovarić I*
 * imastovari@usa.net

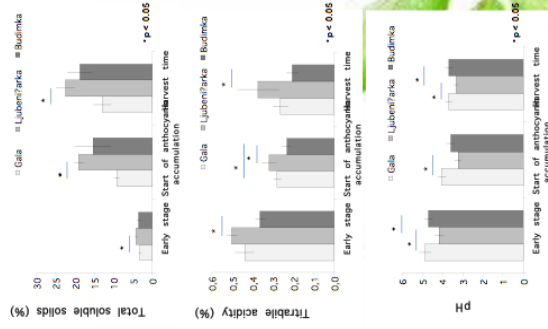


INTRODUCTION:

Serbia has a rich collection of traditional varieties, of which one of the most popular locally is Budimka, and another, Ljubenicarka, notable for its red flesh, many apple farmers are increasingly capturing market share internationally, such as Gala. However, little work has been done to characterize apple varieties grown in Serbia, which is a major producer in Southeast Europe, exporting about 1.5% of its apple production. Therefore, the special emphasis in this study was made of the following components: total soluble solids (TSS), titratable acids (TA) and pH value throughout the ripening process of three varieties grown in Serbia, to establish whether local Serbian apple varieties show, in this capacity, any significant difference when compared to 'Gala' respectively and between one another and would that difference could help stimulate their commercial production if marketed more effectively.

RESULTS:

Total soluble solids, titratable acidity and pH in Gala, Ljubenicarka and Budimka apple cultivars during the season.



Acknowledgment:

This work is supported by a grant from Ministry of Education, Science and Technological Development of Republic of Serbia

DO YOU PEEL YOUR APPLES?

Nevena Tišma, Ana Mijlković, Milenka Žunić, Ana Stojanović and Dragoljub Dimitrijević

Introduction

- People who regularly consume a diet rich in vegetables and fruits, have substantially lower risks of cardiovascular diseases, type two diabetes and some forms of cancer (LATA et al. 2009).
- Protective roles of fruits and vegetables are in main part due to the occurrence of phenolic compounds (LISTER et al. 1994).
- Apple fruit contains a wide array of phenolic compounds with huge antioxidant and therapeutic activities (LETRER et al. 1994; MAVER et al. 1995).
- Anthocyanin is responsible for blue, red and purple color in plants. Also, it is a major component of fruit ripening in horticulture (GATE-SHITTA 1975; MARIKAKIS 1982).
- Furthermore, those compounds as antioxidant materials in diet have promising effects on human health (VEERA et al. 2009).
- No comparative study was accomplished on these cultivars

Materials and methods

Apples were collected from Bosiljac, cleaned, sliced, peeled, air dried, grounded to fine grade powder. Lipids and waxy compounds were eliminated (n-hexane) by sonication, solvent evaporated, sonicated for 20min, centrifuged and analytical HPLC was conducted.

pH, TA, TSS - measured by JALLES et al. (2003) during 3 stages: accumulation stage - 30 days from bloom (AS) and harvest time (HT)

Phenolics - measured by LATA et al. (2009)

Anthocyanins - measured by MARIKAKIS (1982) in gallic acid equivalents (GAE) et al. (2006)

Conclusion

- Identification and quantification of apple phenolics and flavonoid compounds has big importance in fruit production and horticultural
- Unique role in human health, storage life of fruit, visual and organoleptic characteristics
- Efficient method - HPLC and colorimetric for quantification of phenols and anthocyanins
- Libušanka may be a good choice alternative, for well-known apple cultivars considering phenolic and flavonoid compounds

TA

There is no significant difference in TA and pH values of three apple varieties, but Libušanka has the highest TA and the lowest pH value at the harvest time. During storage this variety will be less susceptible to spoilage by microorganisms.

TSS

Total soluble solids (TSS) has tendency of growing during maturing of all three apple varieties. TSS content is a good indicator of sugar content of apples and presumably of sweetness.

Acknowledgements
 Pharmacology Laboratory of the Applied Research Center of Realistic University of Medical Sciences, Belgrade, Serbia.

DO YOU PEEL YOUR APPLES???

Nevena Tišma, Ana Mijlković, Milenka Žunić, Ana Stojanović and Dragoljub Dimitrijević

Introduction

The consumption of apples has been associated with reduced risk of degenerative diseases (cardiovascular diseases, cancer...). This association is often ascribed to the polyphenolic antioxidant contents of apples. Apples contain a wide array of phenolic compounds as well as antioxidant activity are highest in the peels. Serbia has traditional varieties, such as Budimka and Libušanka, but many apple farmers are replacing them with international varieties, such as Gala. The objective of this study went to investigate the phenolic profiles, including flavonoid and anthocyanin contents as well as antioxidant activity, of these three varieties grown in Serbia.

Methods

Collected fruits were rinsed with distilled water to removing of dirt or external objects and dried. The fruits were peeled and pulp were separately dried in a dark place with ambient ventilation. Air-dried plant materials were ground to obtain a fine grade powder. Lipids and waxy compounds of samples were eliminated using n-hexane in an ultrasonic bath. Residues were assayed for phenolics and anthocyanins. Total phenolics were analyzed in duplicate and the mean quantity per unit dry weight was calculated. pH, TA and TSS were measured during three growth stages i.e. early growth stage (32 d after full-bloom), unripe developed fruit stage (at the start of anthocyanin accumulation, 90 days after full-bloom) and harvest time (HT). Anthocyanins, phenolics and flavonoids as well as pH, TSS and TA were measured in triplicate. One-way ANOVA was employed for the analysis of data.

Results and discussion

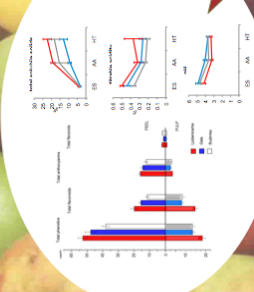
Total soluble solids (TSS) has tendency of growing during maturing of all three apple varieties. TSS content is a good indicator of sugar content of apples and presumably of sweetness. We can say that Libušanka is the sweetest and the juiciest apple variety. There is no significant difference in TA and pH values of these three varieties, but Libušanka has the highest TA and the lowest pH value at the harvest time. During storage this variety will be less susceptible to spoilage by microorganisms. In peel, level of total phenolics is significantly lower in Budimka in regard to Libušanka and Gala, while in pulp is significantly higher in Libušanka. Libušanka contains the highest amount of total flavonoids, while in pulp Libušanka contains significantly more than other two varieties. Level of total anthocyanins is similar in all three apple varieties. In all three apple varieties total flavonoids level was statistically different. In both pulp and peel, total flavonoids are higher in Libušanka than in other two varieties. Budimka contains significantly more phenolics, flavonoids and anthocyanins. Budimka contains significantly more total flavonoids in peel as in pulp. In pulp of both variety phenolics, flavonoids and anthocyanins are equally represented.

Conclusion

Antioxidant substances are most abundant in peel than in pulp. When we compare Gala, Budimka and Libušanka, all antioxidant substances are the most abundant in Libušanka in pulp as in peel. Also this variety is sweetest and juiciest and less susceptible to spoilage by microorganisms.

Although the presence of antioxidant substances is significantly reduced in the pulp compared to peel, this reduction is less in local varieties. If you do peel your apples traditional varieties are preferred, but if you don't peel your apples your choice should be Libušanka in term of beneficial to your health.

Don't peel your apples!



Acknowledgements
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LEAVE THE PEEL ON THE APPLE

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1. INTRODUCTION

Traditional apple varieties, like Budimka and Ljubomirka, are often replaced with new varieties, such as Gala. They are at risk despite their attractively-colored red skins, delicious pulp and good shelf-life qualities. It is well known that the consumption of apples is bounded with reduced risk of many serious degenerative diseases. This diet is associated with the content of flavonoids and polyphenolic compounds which are known to protect the human body against oxidative stress. The red color of apple peel is due to the presence of cyanidin-3-galactoside, the major anthocyanin present in red varieties. Although all compounds with the antioxidant activity are known to be highest in the peels, the peel is frequently discarded before the apple is consumed. The aim of this study was to examine the preservative role of apple peels and to prove if the local Serbian apple varieties have beneficial protective characteristics that could help stimulate their commercial production.

2. MATERIALS AND METHODS

Apple varieties Gala, Ljubomirka and Budimka were collected from the Rosilac district of Serbia. Air-dried plant materials were ground and were stored in three separate bags. Total phenolic contents were determined by Folin-Ciocalteu method. Solvent was evaporated using a rotary-evaporator. The residues were suspended in 100mM NaOH: H₂O (1:1) and sonicated for 20 min. The resulting aqueous extracts were sequentially filtered and centrifuged at 13000 rpm. Finally, extracts were assayed for phenolic constituents by analytical HPLC. Anti-oxidant phenolic compounds were quantified according to the method described by Lata *et al.* (2009). Cyanidin-3-galactoside was separated by the third binary solvent system of 0.1% formic acid in water:methanol, with gradient of 10-100%. Total anthocyanin contents were measured by the method of Markakis (1982) and are expressed as gallic acid equivalents by the Folin-Ciocalteu method (Kim *et al.*, 2006).

3. RESULTS

The highest level of phenolic compounds in peel is in traditional Serbian variety Ljubomirka, while the lowest is in Budimka. Also, content of total anthocyanins and cyanidin-3-galactoside in peel are the highest in Ljubomirka. The peel of all three varieties has shown statistically significant higher levels of total phenolics, total anthocyanins and cyanidin-3-galactoside comparing with the pulp.

4. CONCLUSION

Assessment of total phenolic content and total anthocyanins, especially cyanidin-3-galactoside, have gained great importance in fruit production, due to unique roles of these compounds in visual and organoleptic characteristics of fruits and in human health. HPLC and colorimetric methods showed their efficiency for quantification of phenolic and flavonoid compounds. The peel of all varieties showed higher levels of these compounds comparing with the pulp. This result indicates, there should be a greater awareness among consumers about the importance of consuming apples with peel. Traditional Serbian variety Ljubomirka showed higher levels of total phenolic compounds, anthocyanins and cyanidin-3-galactoside, comparing with international Gala variety. What is advantage when it comes to commercial production and exporting apples outside Serbia.

We are very grateful for the Pharmacognosy Laboratory of the Applied Research Center of Rosilac, University of Medical Sciences, Rosilac, Serbia.

Do traditional Serbian apples have more health protective characteristics than Gala?

Michael Mouse and Donald D. Uck
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BACKGROUND

The consumption of apples has been associated with reduced risk of cardiovascular diseases and cancer. With almost 15 million trees, apples are an important sub-sector of the fruit growing industry in Serbia. Phytochemicals affect the body against oxidative stress. The red color of apple peels is due to the presence of cyanidin-3-galactoside, the major anthocyanin present in red varieties. Total phenolic, flavanol and anthocyanin contents as well as antioxidant activity are known to be highest in the peels. Although Serbia has a rich variety of apple peels, the peels are usually discarded with many apple farmers are gradually replacing them with varieties that are increasingly capturing market share internationally, such as Gala. The objectives of this study were to examine the protective role of apple peels through aspects of their phenolic profiles, antioxidant activity, of three varieties grown in Serbia, to establish whether local Serbian apple varieties have beneficial protective characteristics that could help stimulate their commercial production.

CONCLUSION

Our data have clearly shown supremacy of traditional Serbian apple varieties Ljubomirka and Budimka over the international commercial variety Gala in content of compounds well known for their nutritive value and antioxidant effect. Highest amount of these compounds is found in peel of all three studied cultivars, which indicates consumption of apple with peel might be recommended to achieve better nutritive as well as health protective benefits.

DISCUSSION

Traditional Serbian cultivars Ljubomirka and Budimka had higher amount of phenolic compounds than commercial cultivar Gala. Total phenolic contents were higher in Ljubomirka and Budimka than in peel of three apple varieties were higher than in the pulp. The results of study are in agreement with those reported by Mancoor *et al.*, 2012 and Leontowicz *et al.*, 2009. Results indicated that Ljubomirka can be considered as a potential source of natural antioxidants.

RESULTS

MATERIAL AND METHODS

All of the apple cultivars used were collected from the Rosilac district of Serbia. After transportation to the Pharmacognosy Laboratory of the Applied Research Center of Rosilac, University of Medical Sciences, Rosilac, Serbia, the samples were subjected to initial processing, peel and pulp were separately dried and then ground to a fine grade powder. Following the extraction of lipids and waxy compounds, evaporation of solvent, suspension and sonication of residues, we assayed filtered and centrifuged aqueous extracts for phenolic compounds. Antioxidant phenolic compounds were quantified using method described by Lata *et al.* (2009). For separation of cyanidin-3-galactoside and cyanidin-3-galactoside the second and third binary solvent systems were established. The pH of fruit pulp extract was assayed, using a pH meter, by the method of Markakis (1982). Total phenolic contents were measured by the method of Markakis (1982). Total anthocyanin contents were measured by the method of Markakis (1982). Total proanthocyanidins were quantified using the spectrophotometric method detailed by Bate-Smith (1975), while for the total flavonoid content, method of Wang *et al.* (2001) was employed. One-way ANOVA was used for the analyses of the data.

Antioxidant capacity of apples: Are domestic varieties unfairly underestimated?

Irena Rajnpreht, Gordana Andrejic, Ivana Vujnovic, Najib Eljabo and Veljko Magnificent Blagojevic

3. KEY FINDINGS

1. INTRODUCTION

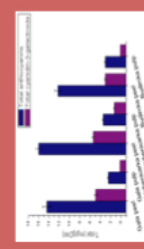
Consumption of apples reduces the risk of degenerative diseases such as cardiovascular diseases and cancer. This association is due to the polyphenolic and flavonoid antioxidant contents of apples. Serbia has a rich collection of traditional varieties of apples, but farmers are gradually replacing them with international varieties, putting the traditional ones at risk.

2. AIMS AND METHODS

The aim of this study was to examine the protective role of three apple varieties (Gala, Ljubenicarka and Budimka) grown in Serbia. We intended to establish if local Serbian varieties (Ljubenicarka and Budimka) have beneficial protective characteristics that could help stimulate their commercial production.

>The peel and pulp of fruits were analysed individually, and both were air-dried.
 > Total phenolic, flavonoid and anthocyanine content was measured using HPLC (High Pressure Liquid Chromatography) and spectrophotometric methods.
 > For the analysis of data, one-way ANOVA was used. The results are shown in the form of histograms.

The measured concentrations of phenolic compounds, flavonoids and anthocyanins follows a similar trend (Fig. 1, 2 and 3).



* DW – Dry Weight

Apple peels show much greater content of analysed substances compared to pulps. There is a clear disparity between Ljubenicarka and Budimka – Ljubenicarka has a greater overall content of all tested compounds, while Budimka had a slightly lower content.

4. So...

- o Ljubenicarka apple has greater antioxidant potential than Gala, while Budimka's potential is lesser.
- o Traditional apple varieties have comparable, or greater health benefits than international ones, so their commercial production should be stimulated
- o Do not waste precious antioxidants by peeling your apples, no matter what variety.

❖ Worms are the heralds of luck, especially in apples



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Are international apple cultivars truly better than traditional ones?

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1. Introduction

The consumption of apples has been associated with reduced risk of degenerative diseases, such as cardiovascular diseases and cancer. This association is often ascribed to the polyphenolic antioxidant contents of apples, and these, together with flavonoids, are known to protect the human body against oxidative stress. Total phenolic content is known to be positively associated with total antioxidant activity in both the peel and pulp of apples.

Although total phenolic, flavanol and anthocyanin contents as well as antioxidant activity are known to be highest in the peels. The peel is frequently discarded before the apple is consumed.

Apples are an important sub-sector of the fruit growing industry in Serbia. Although Serbia has a rich collection of traditional varieties, of which one of the most popular locally is Budimka, and another, Ljubenićarka, is notable for its red pulp, many apple farmers are gradually grubbing up their traditional apple varieties and replacing them with varieties that are increasingly capturing market share internationally, such as Gala.

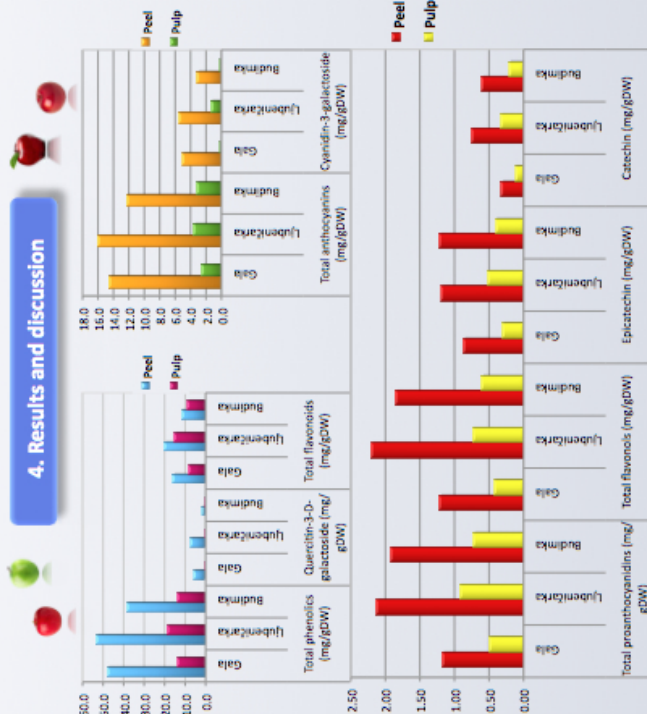
2. Objectives

The objectives of this study were to examine the protective role of apple fruits through aspects of their phenolic profiles, including flavanol and anthocyanin contents as well as antioxidant activity, of three varieties grown in Serbia, to establish whether local Serbian apple varieties have beneficial protective characteristics that could help stimulate their commercial production if marketed more effectively.

- Summary -

Native cultivars are richer in compounds that positively influence human health. Peel contains far more of these substances than pulp in every cultivar. Overall, it seemed that Ljubenićarka may be a good native alternative for well-known apple cultivars considering phenolic and flavonoid compounds.

4. Results and discussion



It's revealed that the highest amount of total phenolics, anthocyanins, proanthocyanidins and flavonoid compounds were recorded in Ljubenićarka apple peel. HPLC analysis showed that the highest quantity for flavanols were in Ljubenićarka fruit (both peel and pulp).

3. Materials and methods

Fruits of apple cultivar Gala (originating from New Zealand) and two from Serbia (Ljubenićarka and Budimka) were collected from the Rosilac district of Serbia. Peel and pulp were separately dried and analysed.

Separation of phenolic compounds was carried out with an HPLC system with different solvent system of the mobile phase for quercetin-3-O-galactoside (0.25 mM phosphate buffer, pH 2.5/ acetonitrile) and cyanidin-3-galactoside (0.1% formic acid in water/methanol).

Total anthocyanin contents are expressed as gallic acid equivalents by the Folin-Ciocalteu method. Proanthocyanidins concentration was determined by Bates-Smith spectrophotometric method.

The total flavonoids content was determined using a colorimetric method and rutin hydrate was used as a standard.



5. Acknowledgements

We are grateful for generous support from the Ministry of Education, Science and Technological Development of Republic of Serbia which funded our project.

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Apple Varieties - Old vs. New

Summary

Traditional Serbian apple varieties are at risk of being replaced with new and internationally popular ones. Study was conducted to examine phenolic profiles and antioxidant activity of three apple varieties grown in Serbia, to establish if local Serbian varieties have characteristics that could stimulate their commercial production. Results have shown that local Serbian variety Lubenicarka has higher concentrations of phenolic than the new variety-Gala. This discovery can be used as a starting point for renewing commercial production and conservation of traditional apple varieties.

Results and Discussion

Phenolic compounds content is significantly higher in peel than pulp in all cultivars.
 Lubenicarka (old variety) has the highest concentration of phenolic compounds in peel and pulp.
 Gala (new cultivar) and Budimka (old) have the similar content of compounds in pulp. A slight difference between these two exists in peel compounds content.

Introduction

The consumption of apples has been associated with reduced risk of cardiovascular diseases and cancer. This is often ascribed to the polyphenolic and flavonoid antioxidant contents of apples, that are known to protect the human body against oxidative stress by oxygen-free-radical scavenging. Although total phenolic, flavonoid and antioxidant contents of apples are high, the peel is known to be the highest in the species, the peel is frequently discarded before the apple is consumed.
 Serbia's traditional varieties, like Budimka and Lubenicarka, are getting widely replaced with internationally popular ones, such as Gala. Therefore, traditional apple varieties are at risk, despite their slightly attractively-coloured red skins, delicious pulp and good storage characteristics.
 Study was conducted to examine the protective role of apple fruits through aspects of their phenolic profiles, including flavanol and anthocyanin contents as well as antioxidant activity, of three varieties grown in Serbia, to establish whether local Serbian apple varieties have beneficial protective characteristics that could help stimulate their commercial production if marketed more effectively.

Peel

Pulp

Conclusion

Identification and quantification of apple phenolic and flavonoid compounds have gained great importance in horticulture and fruit production due to the unique role of those compounds in visual and organoleptic characteristics of fruits, storage life of fruit and also in antioxidative health.

The results have shown that new cultivars are not necessarily better than traditional varieties. The results led to the following conclusion that some of traditional cultivars should not be forgotten, on contrary their exploitation should be promoted.

Materials and Methods

The peel and pulp were separately dried in a dark place with ambient ventilation. Plant materials were ground to obtain a fine grade powder. Lipids and wax were eliminated using n-hexane in an ultrasonic bath. Solvents were evaporated using a rotary evaporator. The residue was dried in a vacuum oven at 40 °C for 24 h (MAG 5000, Breda, Italy). Aqueous extracts were sequentially filtered and centrifuged (10 min) at 13000 rpm.

Extracts were assayed for phenolic constituents by analytical HPLC. The method was modified from Wang et al. (2006) and validated by the method described by LATA et al. (2009). All samples were analyzed in duplicate and the mean quantity per unit dry weight was calculated. One-way ANOVA was employed for the analysis of data.

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GALA OR SERBIAN APPLE CULTIVARS?

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RESULTS

CONCLUSIONS

According to the results obtained in the experiment, Lubenicarka and Budimka cultivars expressed significantly higher levels of proanthocyanidins, flavonols, epicatechin and catechin in peel and pulp extracts compared with Gala cultivar, and thus higher antioxidant activity and protective role.
 These protective characteristics of two domestic apple cultivars could help stimulate their commercial production if marketed more effectively. Furthermore, this could save and promote Serbian fruit growing industry.

ABSTRACT

Consumption of apples on regular basis implies reduced risk of cardiovascular diseases and cancer. This is often ascribed to the polyphenolic and flavonoid contents. The aim of this study was to examine and compare the phenolic profiles and antioxidant activity of three apple varieties grown in Serbia - domestic - Lubenicarka i Budimka, and one foreign - Gala) through aspects of their proanthocyanidin, phenol and flavonoid contents. Considering its protective role, the production of phenolic compounds in apples is stimulated, and it would benefit apple placement on the market.
 The results revealed that Lubenicarka and Budimka cultivars expressed significantly higher levels of proanthocyanidins, flavonols, epicatechin and catechin in peel and pulp extracts compared with Gala cultivar. Furthermore, this could save and promote Serbian fruit growing industry if marketed more effectively.

INTRODUCTION

Apple fruit contains a wide array of proanthocyanidins, phenolic compounds and flavonols with high antioxidant and therapeutic activity, as well as other compounds such as vitamins. A 15 million trees, apples are an important sub-sector of the fruit growing industry in Serbia. However, many apple farmers in Serbia are gradually grubbing up their traditional apple varieties (such as Budimka and Lubenicarka) and replacing them with varieties that are increasingly capturing market share internationally, such as Gala. Since little work has been done to characterise apple varieties grown in Serbia, the objectives of this study were to examine the protective role of the three apple cultivars through aspects of their proanthocyanidin, phenolic and flavonoid contents to establish whether local Serbian apple varieties have beneficial protective characteristics that could help stimulate their commercial production if marketed more effectively.

MATERIALS AND METHODS

Fruits of apple cultivar Gala (originating from New Zealand), and two from Serbia (Lubenicarka and Budimka) were collected and peeled. Peel and pulp were separately air-dried and ground to a fine grade powder. Solvent was evaporated using a rotary-evaporator. Aqueous extracts were filtered and centrifuged, then assayed by HPLC. Proanthocyanidins were quantified using the spectrophotometric method. The method of Wang et al. (2006) was employed to quantify total flavonoid compounds using rutin hydrate for standard curve comparison. Phenolic compounds were assayed according to the method described by Lata et al. (2009). Total content of these compounds was measured in triplicate. One-way ANOVA was employed for the data analysis.

ACKNOWLEDGEMENTS

This work is supported by the grant No. 19337 from the Ministry of Science, Republic of Serbia.
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Moving on to oral presentations:

Since my post-doctoral studies I have given so far well over 100 presentations of my research at scientific meetings.

My last scientific presentation at a conference was an international Bosnia in November 2012.

Presentation problems over the years:

- presentation generally disorganised
- slides out of order
- occasional slides not relevant
- poor background sometimes
- slides often too complex
- slide animations too fancy
- font size too small
- no acknowledgements

Presenter problems over the years:

- not speaking clearly
 - speaking too quickly at times
 - looking at the projector screen too much
 - reading text from the projector screen
 - reading text too much from the laptop
 - hesitant delivery
 - waving the pointer around
 - pointing at the laptop screen
 - waving hands around nervously
 - fiddling with coins/keys in the pocket
 - shuffling from one foot to the other
 - not loud enough at times
 - not looking at the audience
 - slides not clearly described
 - fiddling with parts of the body
 - poor timing of presentation
 - no drink prepared beforehand
 - looking around hoping for inspiration
 - mobile phone not switched off
 - giving presentation to the chairman
 - poor use of the microphone
 - no description of graphs or tables
 - not checking that slides run on the computer
- Three crucial factors are key to a successful oral presentation:
 - Prepare what to show
 - ***Prepare how to show it***
 - ***Prepare the environment***

Preparing what to show:

1. The content

- it has to tell a story: beginning
 middle
 end
- keep it as simple as possible:
 don't put too much in one picture

Prepare how to show it:

2. The presentation

- prepare yourself beforehand to relax
- first impressions on your audience are important
- think how to interact with your audience
- you should know more about the subject than the audience does

Prepare the environment:

3. The environment

- check that the file runs on the computer (have a pdf version as a backup)
- check that there is a pointer of some sort
- check whether microphone needs to be used
- check whether there is a drink
- check that your notes (if used) are in order

Note that although I shall focus on talks at a conference, the information is just as relevant for giving a student lecture.

PREPARING THE CONTENT

“Do”s and “Don’t”s (1)

Do think carefully about how long you have for the talk:

- if you have only a 20 min talk, don't put in enough material for 30 min!

[thinking you can squeeze in a few more slides at the end means that you will either go over time or rush through the end of your talk and the audience won't follow it!]

- unless you plan to show lots of simple pictures, a good 'rule of thumb' is 2 minutes per slide, which means 10 slides for 20 min, 15 slides for 30.

[don't forget the time you need to describe any graph and table legends, axes, etc]

“Do”s and “Don’t”s (2)

Do organise carefully what you want to present:

- decide the main message that you want to pass on to your audience
- like a short detective story, your presentation should have
 - a **beginning** [Introduction - what is it all about?]
 - a **middle** [The research done to find the clues]
 - a **end** [How did the research solve the mystery?]
- plan the amount of detail you need to give according to the complexity of the subject and the likely level of understanding of your audience.

“Do”s and “Don’t”s (3)

Do give an outline or objectives of your talk:

- the audience will then know what to expect from your presentation

“Say what you will say. Say it, then say what you said!”

Don’t confuse your audience with a complicated plot:

- you should describe a linear sequence of events leading to the solution of the ‘mystery’.

[unlike a book, your audience can’t go back to read a previous chapter to understand what the ‘sub-plot’ is about, so exclude information not essential to the story you want to tell!]

“Do”s and “Don’t”s (4)

Don’t put too much into a particular slide:

- although it might be useful for the audience to see all the details of what you did for your research. If you try to squeeze all of those details onto only one slide then it becomes very difficult for the audience to read all the words, and after a while they will just give up and they won’t realise that in the middle of the text you have included a joke about Mujo and Haso - well, more about Haso and Fata really, who had a very large family (normalno) of sons and every one called Mujo! When asked by a visitor how did Fata know which one of them is which, Fata replied “from their surnames.” Well, it sounded funny the way my wife told it and was one of the few relatively clean jokes that I’ve come across; though there were some I heard when I was here during the bombing campaign ... But that’s another story, and in any case I can’t imagine that any of you will have bothered to read all this text all the way to the end of the page, so dosta!

Vozi Mujo bicikl i sretne Hasu. Haso ga pita:
Otkud ti bicikl?
Od komšinice.
Kako to, od komšinice? - opet će Haso.
Idem ja šumom i sretnem komšinicu kako vozi bicikl... Odjednom se ona skine, baci haljinu na jednu, a bicikl na drugu stranu, pa mi reče: "Uzmi, Mujo, što ti srce želi!" I ja ti, brate, uzmem bicikl!
Haso odobri:
Pa dobro si uradio... šta će ti haljina!

Don’t put too much into a particular slide:

- the average brain seeing a lot of text or numbers at once has a tendency to seize up or switch off!
- once you have lost your audience with too much or too complicated information it is difficult to get them back!

[keep the information on each slide simple. Only show a complicated slide to illustrate that it is complex! Then extract what you want in a separate slide.]

If you want to demonstrate something from a large table, like the one on the next page, then after showing the full table, to illustrate its complexity, for example, extract or highlight the main points you want to make.

A table to demonstrate the variability amongst varieties:

Data collected from a field experiment in Zajecar under irrigated and rainfed field conditions in 2000.

DH line number	stem ht irrigated	stem ht rainfed	flowering date		leaf length irrigated	leaf length rainfed	biomass/ plant irrig	biomass/ plant rain	DH line number	stem ht irrigated	stem ht rainfed	flowering date		leaf length irrigated	leaf length rainfed	biomass/ plant irrig	biomass/ plant rain
			in May irrigated	in May rainfed								in May irrigated	in May rainfed				
1	95.5	94	19	12	31.81	25.53	7.69	6.69	49	42.5	40.5	17	14	24.62	17.97	6.26	3.71
2	86	85.5	19	17	29.13	28.39	12.41	8.71	50	49	45	16	14	21.47	21.23	6.58	4.94
3	68.5	62.5	16	14	27.20	21.20	11.35	6.08	51	85.5	84.5	12	10	29.91	23.78	6.95	5.53
4	68.5	56	20	19	26.39	22.48	11.55	6.18	52	79	78.5	14	12	24.57	24.37	10.47	8.20
5	79	79	18	12	24.97	21.82	9.20	6.96	53	64.5	56.5	19	15	27.72	24.21	12.29	7.00
6	79.5	75	14	11	21.16	16.41	10.41	8.03	54	71.5	68.5	20	17	24.46	21.31	11.46	7.83
7	80	80	16	14	23.67	23.04	9.47	8.13	55	81.5	80	14	12	27.14	21.29	9.29	5.75
8	73.5	69.5	12	9	24.98	19.18	7.88	5.99	56	81	77.5	15	13	28.81	23.51	11.80	8.04
9	61	60	17	12	23.33	18.23	9.83	5.80	57	65.5	60	16	12	27.69	26.19	10.96	6.52
10	61	60	20	15	29.02	24.12	15.14	9.08	58	95.5	73.5	18	17	27.47	21.26	12.46	9.64
11	68	64.5	17	13	23.29	20.48	10.19	5.72	59	63.5	62	20	18	26.29	23.24	10.58	7.27
12	92.5	77.5	17	16	22.40	18.79	10.72	7.62	60	77.5	64.5	13	11	22.90	16.57	9.26	7.18
13	80	69	14	12	24.22	20.04	9.84	6.63	61	*	*	*	*	25.48	18.32	*	*
14	86	80	19	15	27.42	20.20	11.25	6.60	62	74	67	14	14	26.81	21.57	12.65	7.63
15	69	65.5	17	14	24.37	24.35	9.75	7.25	63	64	63	20	15	23.40	23.18	8.03	4.21
16	67	62	12	10	23.28	17.83	7.39	4.49	64	62	59	17	14	29.24	23.57	11.93	7.46
17	79.5	75	14	12	24.72	20.06	6.43	4.71	65	74	68	14	13	27.23	23.15	8.30	7.41
18	63.5	63.5	21	17	23.57	22.40	9.60	6.63	66	60.5	57	15	12	22.10	21.16	10.21	8.29
19	59.5	56	21	17	26.34	21.20	11.18	7.92	67	88.5	88	14	11	29.76	22.34	9.87	7.82
20	66.5	61.5	16	15	27.76	24.21	9.74	8.09	69	67	66	18	15	26.57	22.36	7.62	5.94
21	92	87.5	12	11	27.93	19.09	8.45	5.41	70	67.5	59.5	12	11	26.19	20.67	8.87	6.80
22	65.5	63.5	18	15	22.15	21.14	8.67	5.59	71	92	92.5	13	11	29.27	21.14	8.89	7.37
23	67.5	66	14	12	26.04	21.49	7.19	6.25	72	64.5	63	13	10	21.65	20.71	7.20	4.96
24	63.5	62	19	15	20.59	20.38	10.19	6.65	77	*	*	*	*	*	*	*	*
25	89.5	80.5	14	12	26.46	20.78	10.14	6.52	80	64	62.5	11	10	21.87	21.54	10.75	6.26
26	94	75.5	23	22	27.54	22.90	8.49	5.89	86	71	70	14	11	24.02	17.58	7.13	4.72
27	70	70.5	13	9	23.35	21.47	6.57	5.58	87	64	63	14	11	23.06	20.12	9.59	8.39
28	69.5	65.5	15	14	23.47	21.50	11.29	7.27	88	66	65	13	11	25.05	22.35	9.70	6.48
29	64.5	62	13	10	26.16	20.12	8.80	6.14	90	88	85.5	13	12	25.66	21.46	11.02	10.50
30	68	67.5	13	10	21.14	22.30	7.13	6.15	91	64	56.5	16	12	25.20	20.36	9.51	8.84
31	79.5	77.5	14	11	21.62	22.81	10.92	8.29	92	58	54	16	16	25.17	24.55	11.21	7.17
32	85	75	18	14	27.89	24.40	10.13	7.66	93	73.5	71.5	8	7	24.43	20.36	10.38	8.76
33	90.5	85.5	13	12	26.03	22.22	8.82	7.73	94	93.5	82.5	21	13	25.86	28.44	10.50	8.00
34	61.5	57	19	18	26.41	20.70	8.86	4.71	96	82	78.5	16	11	30.01	22.05	10.35	0.00
35	75.5	69	13	11	24.52	19.22	5.93	5.14	97	79	75	15	11	27.94	25.02	8.44	5.56
36	53	49	10	9	22.75	16.35	6.79	4.24	98	97	91.5	19	14	27.42	25.33	9.95	6.57
37	67	59	12	8	23.61	21.85	7.87	4.83	99	83	69.5	18	17	29.24	20.84	11.05	6.94
38	44.5	41.5	15	11	21.94	16.73	6.66	3.35	102	80	69	16	14	26.68	22.54	12.30	8.78
39	79.5	76	13	12	26.31	21.90	9.15	8.43	104	70	69	19	14	24.80	22.88	11.16	7.91
40	52	41.5	15	13	19.33	17.54	6.89	3.67	105	62	60	15	13	25.89	20.02	10.15	6.41
41	66	64	19	16	21.98	19.62	8.43	5.25	114	50.5	47.5	12	12	19.58	19.26	9.66	6.18
42	42	41	19	16	24.31	19.98	6.45	3.55	115	78.5	67.5	19	18	25.31	20.42	12.69	6.08
43	64	57.5	16	13	26.48	22.21	8.97	5.98	124	72	64.5	17	16	24.80	19.97	12.18	6.97
44	65.5	63	17	16	25.80	23.11	9.13	6.41	127	71.5	70	15	13	26.38	24.19	10.96	7.95
45	84	84.5	18	15	26.28	21.79	10.78	8.05	128	83	79	17	15	25.87	22.74	9.65	7.44
46	82.5	79.5	15	13	24.46	22.02	9.88	7.66	143	83.5	77	14	12	24.23	20.90	9.35	6.71
47	44.5	42	17	15	20.70	17.69	5.91	4.57	144	43.5	43	13	10	24.49	19.56	5.83	3.47
48	70.5	67.5	19	17	23.89	19.64	12.06	8.12	146	72.5	67	14	12	24.87	17.95	9.66	7.33

(now highlight the main points)

Here are examples emphasising the phenotypic diversity of the population:

Flowering date differences

Plant height differences

DH line number	stem ht irrigated	stem ht rainfed	flowering date		leaf length irrigated	leaf length rainfed	biomass/ plant irrig	biomass/ plant rain
			in May irrigated	in May rainfed				
25	89.5	80.5	14	12	26.46	20.78	10.14	6.52
26	94	75.5	23	22	27.54	22.90	8.49	5.89
27	70	70.5	13	9	23.35	21.47	6.57	5.58
28	69.5	65.5	15	14	23.47	21.50	11.29	7.27
29	64.5	62	13	10	26.16	20.12	8.80	6.14
30	68	67.5	13	10	21.14	22.30	7.13	6.15
31	79.5	77.5	14	11	21.62	22.81	10.92	8.29
32	85	75	18	14	27.89	24.40	10.13	7.66
33	90.5	85.5	13	12	26.03	22.22	8.82	7.73
34	61.5	57	19	18	26.41	20.70	8.86	4.71
35	75.5	69	13	11	24.52	19.22	5.93	5.14
36	53	49	10	9	22.75	16.35	6.79	4.24
37	67	59	12	8	23.61	21.85	7.87	4.83
38	44.5	41.5	15	11	21.94	16.73	6.66	3.35
39	79.5	76	13	12	26.31	21.90	9.15	8.43
40	52	41.5	15	13	19.33	17.54	6.89	3.67
41	66	64	19	16	21.98	19.62	8.43	5.25
42	42	41	19	16	24.31	19.98	6.45	3.55
43	64	57.5	16	13	26.48	22.21	8.97	5.98

(give a couple of illustrations)

“Do”s and “Don’t”s (5)

Do use as much of the slide as possible:

- what is the point of having the space if you don't use it? However, beware of going right to the edge as the projector or screen may cut off some text.

“Do”s and “Don’t”s (6)

Do use a large font size wherever possible:

- the larger the better, so that people can read the text easily.

This example, is 20 point Arial bold.

This example, is 12 point Arial bold.

“Do”s and “Don’t”s (7)

Don’t use a fancy font for your text:

- Sans serif fonts are easier to read than serif fonts: Sans-serif font examples (all 12 point):

Arial, Arial Narrow, Calibri, Helvetica, Geneva, Monaco.

Serif font examples (all 12 point): Bookman Old Style, Courier, Garamond, Times New Roman

- Simple fonts (like Arial) are better than fancy fonts like **Comic Sans MS (Bold)**, *Edwardian Script ITC*, *Lucida Handwriting*

“Do”s and “Don’t”s (8)

Do avoid distracting (obtrusive) backgrounds:

- typing text directly on a background image can make it difficult to read easily, like this example....

Experiment [1]:

Water was boiled in a coffee kettle.

A graduated jug was used to measure 2dl of boiling water that was poured in each of five glass beakers containing 1g of coffee, with a 2 min interval in between. [From a 2011 student presentation.]

Don’t try to use every gimmick (gadget) that PowerPoint has to offer:

- text or graphics that take a long time to appear or zoom wildly across the screen with sound effects can be either boring to wait for, embarrassing or distracting to listen to.
- complicated or brightly coloured backgrounds make it difficult to see what you want to show.

“Do”s and “Don’t”s (9)

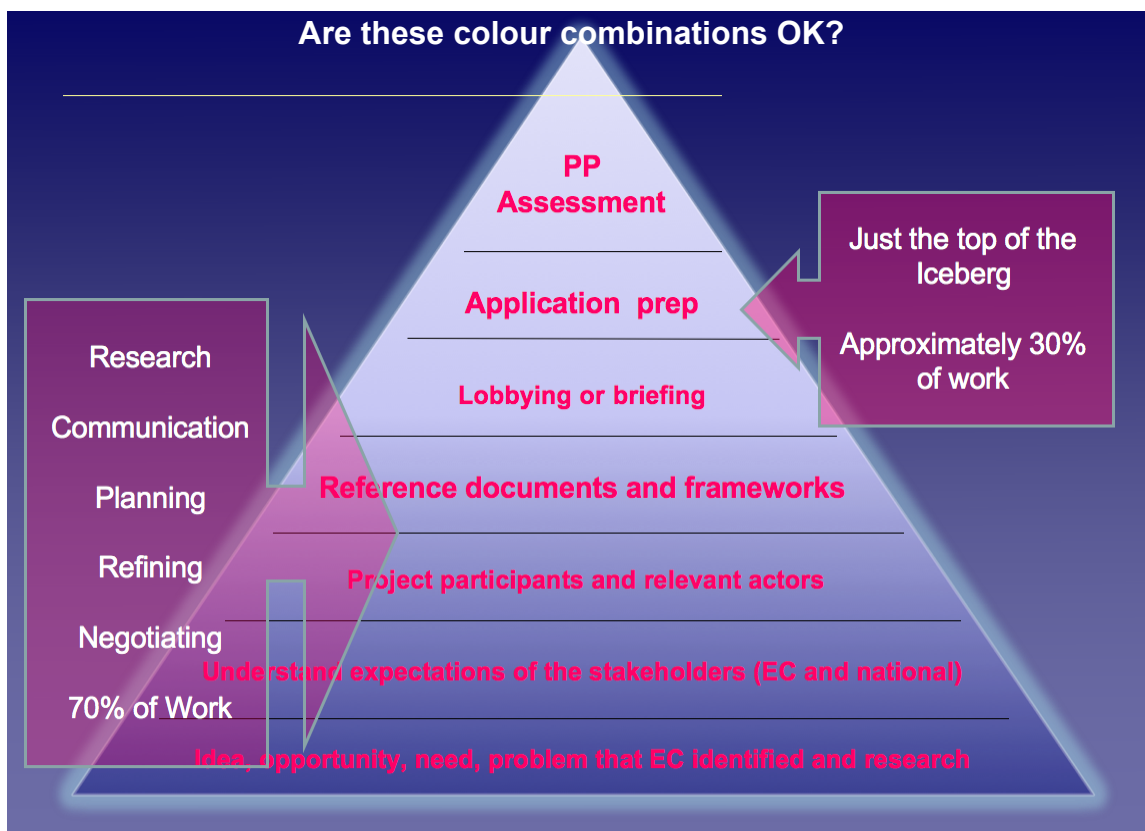
Don’t use a dark background with light colours for text or graphics:

[this was common in the days of 35 mm slides]

- using a dark background often means that the lights in the room have to be reduced to see the foreground material easily, and this:
 - a) makes it difficult for the audience to see to make notes, and
 - b) facilitates older members of the audience falling asleep!

Do use colour combinations that make text and graphics easy to see:

- what looks fine on your computer screen may be difficult to see if the screen is too well lit, as shown here ...



PREPARING THE CONTENT (cont.)

“Do”s and “Don’t”s (11)

Do provide accompanying text to all your figures and graphs:

- this is helpful, in case the audience didn’t hear everything you said
- if you think you will talk too quickly because of nerves, making short sentences of text appear every mouse click may help to slow you down!

Don’t forget to include acknowledgements:

- it is easy to forget to acknowledge all the people who helped you with the work, and especially funding sources for the work.
- maybe if you give the Acknowledgements at the beginning, you won’t forget them at the end!

“Do”s and “Don’t”s (12)

Don’t leave the talk preparation to the last minute:

- completing what you plan to show in good time will give you time to think about the presentation and feel more confident and relaxed about it
- a last minute panic is not a good recipe for a well-presented talk! [See the first YouTube video on page 24.]

“Do”s and “Don’t”s (13)

Do make notes of what you want to say (unless you are experienced!):

- write down the main point(s) for each slide

Don’t write out every word you want to say:

- unless you feel uncomfortable describing the whole slide (for example if giving a talk in English), don’t write down every word you intend to say, as you will be tempted just to read the words and forget to describe what is shown in each slide and to interact with the audience.

[Also, reading from a prepared text often results in you talking too quickly.]

PREPARING THE CONTENT (cont.)

“Do”s and “Don’t”s (14)

Do rehearse the timing of your presentation:

- you will become more confident in presenting it
- you will identify any bits that still don't feel right
- you will be able to get the timing just right.

Do rehearse the presentation with your peers:

- that will get you used to speaking in front of others
- they will be sympathetic and help with improvements
- you will identify any bits that still don't feel right
- you will be able to get the timing just right.

PRESENTING THE TALK

“Do”s and “Don’t”s (1)

Do prepare yourself properly before the start:

- Try to relax - some deep breaths from your diaphragm and relax your shoulder muscles
- check that your notes (if any) are in order
- have a pdf version of your talk available in case of problems
- check that you have a drink ready in case you need it
- check how the microphone works if you need to use it
- check that a pointer of some sort is available if you want it

Don't let your nerves get on top of you!

- learn how to relax mentally and physically.
Some examples to help you are on the next slide.

This selection of videos illustrates some points to help you overcome nerves and other points to avoid:

Perfect World - Presentation Nerves:

http://www.youtube.com/watch?v=VflpD_8wdjw&list=PL81FBE0CE096AA8B0&index=1&feature=plpp_video

Alan Donegan - nerves **[turn down the volume!]:**

http://www.youtube.com/watch?v=cTaDR_4597E

Andrew Bryant - overcoming fear of public speaking:

<http://www.youtube.com/watch?v=7PAwPOBITho&feature=related>

Tom Breeze - public speaking fear:

<http://www.youtube.com/watch?v=xiZoTM-2oSI&feature=related>

David Hyner - handling nerves:

<http://www.youtube.com/watch?v=dr-eY1kY1lc>

How many errors can you find?

<http://www.youtube.com/watch?v=wXILI9Q1jIw>

TJ Walker - find the 10 mistakes:

<http://www.youtube.com/watch?v=BBthvuOQpKc>

Marc Anthony (a former drama teacher) - 10 mistakes:

http://www.youtube.com/watch?v=DVP_6fENXKo&feature=related

Hopefully, you will control your nerves better than this:

<http://www.youtube.com/watch?v=inDf6-TUq5s&feature=related>

Getting nervous before a presentation is normal

- even I do this! [- and not just in front of students!]

- deep breathing from the diaphragm,
- loosen your shoulders to relax the muscles,
- be 100% familiar with what you will say,
- look confident at the start (despite your nerves),
- remember that the audience wants you to do well!

I gave a talk *in Serbian* to schoolteachers in Dom Sindikata in June 2010.

I survived by partly speaking directly at the audience in Serbian, and partly reading Serbian text on the screen (when I couldn't work out what to say in a sentence in Serbian quickly enough)!

“Do”s and “Don’t”s (2)

Do think carefully beforehand about how you will start your talk:

- first impressions on your audience are important
- it may help to memorise your first one or two sentences:
 - “Thank you for the invitation”;
 - “My first time in Vrdnik”;
 - “Sorry you had to get out of bed so early to come to my talk”; etc!

[it is better to start by talking directly at the audience]

- count to five, take a deep breath, **then begin!**

Don’t leave your mobile phone on:

- your wife/husband/girlfriend/evening’s date could ring you in the middle of your presentation!

“Do”s and “Don’t”s (3)

Do get your audience’s attention at the start:

- start speaking slowly!
- start speaking in a clear voice that will be heard at the back of the room!

[Use the microphone if required - described later on]

- start by speaking directly at them (not the chairman)!

Don’t rock from one foot to the other or sway from side to side:

- like the behaviour of the polar bears in the zoo, this is a sign of stress!
- don’t do the ‘symposium speaker’s shuffle’, *especially if the floor creaks!*

PRESENTING THE TALK (cont.)

“Do”s and “Don’t”s (4)

Do try to communicate with your audience:

- address your comments to the audience and not to the screen! [This is easier when using a laptop.]
 - look at your audience, at least from time to time!
 - make statements in the form of questions:
 - “so what did we find?”
 - “what was the reason for this?”
 - “how was this achieved?”
- [This helps to keep their attention]

Don’t turn your back on the audience:

- keep your body facing the audience at all times
- turn your head if you need to look at the screen.

“Do”s and “Don’t”s (5)

Don’t read your talk to your audience:

- reading from a prepared text makes it hard to communicate with your audience
[Remember the example earlier of reading too fast.]
- reading text from the laptop screen is also a risk to lose contact
- use the words on the laptop screen only to remind you what to say next.

Don’t speak in a boring tone of voice:

(see, well, listen to: <http://www.youtube.com/watch?v=APp146G88jA>)

- the audience will lose interest in you quickly!
- use the qualities of your vocal instrument (speed, volume, pitch, tone) to keep the audience awake!

“Do”s and “Don’t”s (6)

Do move around occasionally if possible:

- unless you are asked to stay at a lectern (to use a fixed microphone, for example) move around so that you keep the audience’s attention
- move around, though, to make it look as if there is a purpose to it!
 - towards the screen to point something out
 - towards the audience to emphasise something
- move around when necessary to avoid blocking permanently anyone’s view of the screen.

[Take the microphone with you and use it as if it is part of you!]

Don’t use a lectern like a fortress to hide behind:

- it encourages bad habits like fidgeting and bad posture, so stand to the side of it if you can.

A lectern could also be a problem if you are “vertically-challenged”!



“Do”s and “Don’t”s (7)

Do use a microphone correctly, if it is required:

- get close enough to it for it to amplify your voice!
Adjust the volume of your voice for the degree of amplification provided.
- when you move around, take the microphone with you if possible, and treat it as if it is part of you!

Don’t fidget or play with the loose change/keys in your pockets:

- hearing the constant noise of clattering coins or keys can be very distracting! Also ...

“Do”s and “Don’t”s (8)

Ladies (and men?): Don’t fidget or play with your hair (or any other body parts)!:

[<http://www.youtube.com/watch?v=YivQYeI0vys>]

“Do”s and “Don’t”s (9)

Don’t wave the stick, laser pointer or your hands around:

- these are also very distracting!
- practice your talk holding your hands behind your back, and see how difficult that is!

Do look confident even though you may not feel it:

- remember that you probably know more about what you are presenting than anyone in the audience
- try to interact with your audience so that they feel involved in the presentation.

“Do”s and “Don’t”s (10)

Don’t send your audience to sleep by being too quiet, indistinct or uninteresting:

- be enthusiastic and the audience will enjoy listening to you.

Do keep an eye on the clock and pace yourself:

- it is helpful to have a mid-way mark in the presentation identified so that you can see whether the timing is going OK.
- numbering your slides helps - like I have done.
- I usually take my watch off and put it in front of me.
- you can also put the time on your slides as a footer.
- if you want to cheat, you can use PowerPoint Presenter Tools (under Slide Show menu). This feature can also help you keep to time:

0:04:19

PRESENTING THE TALK

“Do”s and “Don’t”s (6)

- # **Don't wave the stick, laser pointer or your hands around:**
 - these are also very distracting!
 - practice your talk holding your hands behind your back, and see how difficult that is!
- # **Do look confident even though you may not feel it:**
 - remember that you probably know more about what you are presenting than anyone in the audience
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PRESENTING THE TALK

“Do”s and “Don’t”s (7)

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Slide 51 of 54
 Only 3 more before the end!

Slide 52 of 54

PRESENTING THE TALK

“Do”s and “Don’t”s (11)

- # **Do concentrate on varying your speed, volume and look at the audience!!!**
- # **Do send the audience home with the feeling that they have enjoyed the experience.**

“Do”s and “Don’t”s (11)

Do concentrate on varying your speed, volume and look at the audience!!!

Do send the audience home with the feeling that they have enjoyed the experience.

**And if you've done your 3 Preparations
 - so should you!**

LECTURING TO STUDENTS

Note that much of what I have said here also applies to professors maintaining contact with their students and interacting with them while giving lectures.

However, for any sort of public speaking there has to be a balance between **entertainment** and **pedagogy!**

You have to maintain contact and interaction with your audience, though, or they lose interest in your words of wisdom - whether they are students or conference participants.

However, to be an effective lecturer you also have to achieve effective **simultaneous learning** by the student.

Making it **interesting** for your students to listen to and involving them **actively** helps **learning**.