



BIOACTIVITY INVESTIGATION GROUP

Combinations of Natural Products Opportunities and Dangers

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Arabian Medicine

- 1,800 years ago
 - Drugs
 - Many conditions
- 1,100 years ago
 - Samanids
 - Muhamad Zakariyya Razu
 - Abu Ali Ibn Sina
- Records kept



South American Medicine

- Incas
 - Bolivia
 - Kallaways (1500 years at least)

Long history suggests efficacy

Recognised by current consumers



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Currently

- Increasing use of Natural Products
 - Preventative
 - Therapeutic
- Nutraceuticals
- Functional Food
- Food Supplements
- Medicinal Food
- US Market-\$18 billion in 2001- 20% per annum growth



Tendency to use multiple products,
multiple conditions

Anecdotal Information Basis



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Examples

- **Garlic** –used for hypertension, cardiovascular conditions, neoplasms and infections
- **Cod Liver Oil**- used for B-cell lymphoma, prostate cancer, breast cancer, hypertension, hypertryglycerdemia, arthritis, cardio vascular conditions
- **Garlic + Cod Liver Oil**- used for anti-coagulant (andecdotal)

Examples

- **Ginger**
 - Has over 30 uses including inhibition of platelet aggregation
 - Regarded as safe
- **Potential Risks**
 - Concurrent use with anti-coagulant prescriptions or natural products
 - When combined with angelica, garlic, ginseng, panax, red clover, turmeric



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Risks for:

- Individuals
- Producers
- Marketers (international sales)



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Beneficial *or* Detrimental

Product available in Korea, Japan, and China

- Oil derived from shark
 - Anti-angiogenic
 - Anti-inflammatory
- Mushroom Extract (b-glucan rich)
 - Immune enhancing

Beneficial *or* Detrimental

- Shark Oil + Mushroom extract
 - Reduction in proliferation of primary tumours
 - Reduction in metastases
- Effect of combination is synergistic
- Neither of them or combination is anti-tumour



Beneficial *or* Detrimental

- Echinachea-Immune enhancing (Cichoric acid)
 - Echinachea+Herbal Supplements-No reported adverse effect
 - Echinachea+Other Immune Stimulants-Additive effect
 - Echinachea+Other Immune Stimulants-Suppressive effect

Examples of these are commercially available



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Examples From BIG Research

- Lipid-rich extract from sharks is anti-angiogenic
- Potency meant dilution required
- Cooking oil (olive oil)-inactive
- Combination
 - 2x more active *invitro*
 - 6x more active *invivo*

Synergistic Activity-Beneficial Outcome



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Risks of Prescription Pharmaceutical

- Widely Publicised
- Recent publicity on Cox-2 inhibitors
- Also risk of combining 2 pharmaceuticals (regulatory authority requirement)
- Frequently these combinations are for chronic conditions-Elderly often have several medical conditions

Possible that Patients are Taking:

- Over the counter remedies + Prescribed therapies
 - Combination often not revealed at time of prescribing
 - Non-prescription item commenced subsequent to prescription
- Risky
- Little research information

Example-Warfarin

- An anti-thrombotic, anti-coagulant
- Activity decreased by:
 - American Ginseng
 - St John`s Wort
 - CoQ10
- No data on ginseng (Siberian)

Example-Warfarin

- Not all combinations are detrimental
- Activity increased by combining with:
 - Garlic
 - Ginger
 - Ginkgo Biloba
 - Fish Oils
 - 60 other products



Summary

All Natural Products:

- Biologically active
- Can interact with cells, pathways, like drugs
- Modulate other activities
- Own activities altered

Care and caution needed

Similar approach to that with pharmaceuticals

Significant lack of data and information

Need for Research is Urgent



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