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Vitamin B contents of widely cultivating new-improved rice (*Oryza sativa* L.) varieties of Sri Lanka

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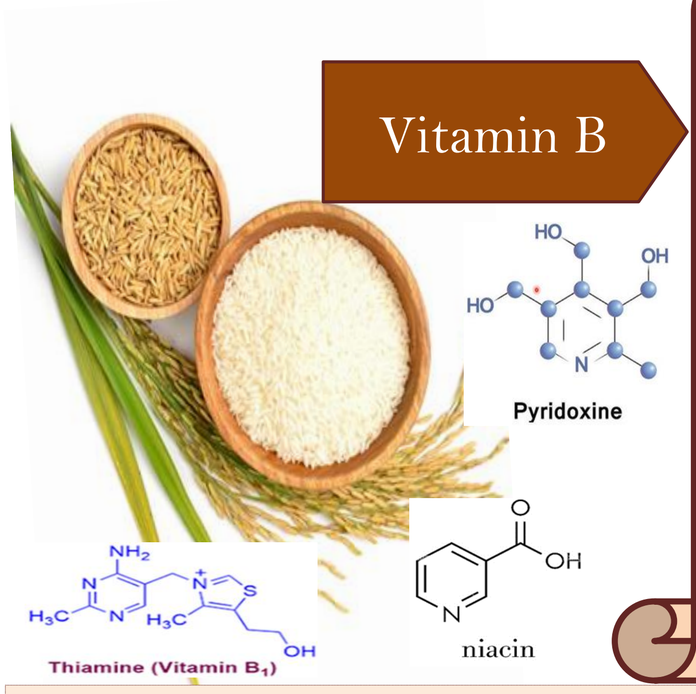
INTRODUCTION & AIM

- Rice is the dietary staple in Sri Lanka
- The annual per capita consumption is nearly 107 kg
- More than 90% of rice cultivation in Sri Lanka accounts new -improved rice varieties (NIRVs)



Benefits

- Healthy function of brain & nervous system
- Helps the body to convert nutrients into energy
- Promotes heart health
- Healthy hair, skin & nails
- Helps to form & repair our genetic materials
- Helps for proper blood function

This study evaluated vitamin B contents of 16 widely cultivating NIRVs in Sri Lanka

METHOD

MATERIALS: Locally grown **16 new-improved** rice varieties **(namely Bg 300, Bg 352, Bg 358, Bg 360, Bg 366, Bg 379-2, Bg 403, Bg 450, Bg 94-1, Bw 272-6b, Bw 367, At 307, At 308, At 309, At 311 and At 362)** obtained from Rice Research and Development Institute (RRDI), Batalagoda, Sri Lanka

Whole-grain rice flour (5 g)

0.1N HCl (25 ml)

Sonicate (5 min)

20% trichloroacetic acid (2 ml)

Boiled in water bath (100 °C, 30 min)

Cool

Adjust final pH to 3

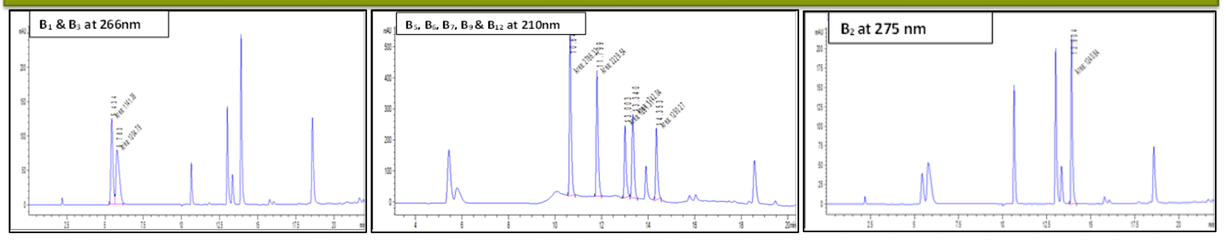
Top-up to 50 ml with distilled water

Centrifuge (3500 rpm, 30 min)

Filter (0.45 µm nylon)

Analyzed by HPLC-DAD
B1 & B3: 266 nm
B2 : 275 nm
B5, B6, B7, B9 & B12 : 270 nm

RESULTS & DISCUSSION



HPLC chromatogram of vitamin B standard mix (Vitamin B_1, B_2, B_3, B_5, B_6, B_7, B_9 & B_{12}) at 266nm, 270 nm & 275 nm

Table 1. Variation of vitamin B (B_1, B_2, B_3, B_5, B_6, B_7, B_9 & B_{12}) contents of selected new improved rice varieties of Sri Lanka.

Rice variety	Pericarp colour	Vitamin B content (µg/g)							
		B_1	B_2	B_3	B_5	B_6	B_7	B_9	B_{12}
At 311	Red	31.9^{a}	2.9^{b}	25.8^{f}	13.0^{f}	7.4^{efg}	11.7^{ef}	1.8^{b}	ND
Bg 403	White	24.1^{b}	1.5^{defg}	35.1^{e}	18.6^{f}	9.9^{bcd}	8.8^{fgh}	ND	ND
Bg 94-1	White	24.0^{b}	1.5^{defg}	26.9^{f}	11.1^{f}	8.3^{cdef}	3.7^{gh}	0.7^{de}	ND
At 308	White	21.3^{b}	2.9^{b}	48.7^{d}	30.2^{e}	8.0^{defg}	21.4^{cd}	0.8^{cd}	ND
Bg 358	White	14.1^{c}	1.9^{cdef}	37.2^{e}	32.6^{e}	12.0^{ab}	24.3^{c}	ND	ND
Bg 300	White	13.1^{cd}	4.3^{a}	82.0^{a}	56.4^{c}	13.6^{a}	72.5^{a}	3.1^{a}	ND
At 362	Red	12.5^{cd}	2.8^{bc}	23.1^{fg}	17.5^{f}	6.2^{fg}	2.6^{h}	1.5^{bc}	ND
At 309	White	12.2^{cd}	0.7^{g}	25.4^{f}	13.0^{f}	9.4^{cde}	10.1^{fg}	0.5^{de}	ND
Bw 272-6b	Red	11.9^{cde}	1.7^{def}	71.2^{b}	82.5^{a}	12.4^{ab}	50.5^{b}	3.2^{a}	ND
Bg 450	White	9.9^{cdef}	1.4^{defg}	83.5^{a}	16.4^{f}	7.2^{efg}	18.8^{cde}	0.9^{cd}	ND
Bw 367	White	9.2^{def}	1.3^{efg}	20.8^{fg}	38.1^{de}	10.5^{bc}	23.7^{c}	ND	ND
Bg 352	White	7.6^{efg}	2.3^{bcd}	83.5^{a}	66.1^{b}	12.1^{ab}	57.5^{b}	2.8^{a}	ND
Bg 379-2	White	7.5^{efg}	2.0^{bcde}	23.2^{fg}	11.6^{f}	9.1^{cde}	1.6^{h}	ND	ND
At 307	White	6.3^{fg}	1.8^{def}	41.8^{de}	30.0^{e}	5.7^{g}	25.2^{c}	ND	ND
Bg 366	White	6.1^{fg}	1.0^{fg}	18.2^{g}	29.6^{e}	8.4^{cdef}	15.9^{def}	ND	ND
Bg 360	White	4.3^{g}	2.1^{bcde}	56.7^{c}	46.7^{d}	13.8^{a}	23.5^{c}	ND	ND

Results expressed as mean value of triplicate analysis on dry weight basis of whole grain rice. Mean values in a column superscripted by different letters are significantly different at $P < 0.05$; ND: Not Detected

Studied rice varieties **contained more of vitamins B_1, B_3, B_5 and B_7** among the B-complex.

CONCLUSION

The studied NIRVs of Sri Lanka comprised more of vitamin B_1, B_3, B_5 and B_7 and the contents varied among the studied rice varieties

FUTURE WORK / REFERENCES

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