

Stains on the carpet

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Some people have red urine and faeces after eating beetroot, but how much do we know about beetroot's ability to intensify the colour of blood, thereby making blood stains impossible to remove?

One summer evening in 2004 our 11 year old son went to bed after various delaying tactics—arguments about friends who stay up later, forgetting to brush teeth, coming down for a drink of water. Shortly afterwards the dining room door opened. In he came, cupping his bleeding nose in one hand as he gripped the bridge of the nose with the other.

We led him to the kitchen sink to help him clean up and stem the bleeding. Oddly, though, the blood on his hands would not wash off and looked brighter than usual. The poor child was interrogated. Was this a lark? Were there no limits to his determination to stay up late at night?

The bleeding stopped, and his hands, although stained pink, were clean and dry. Upstairs we found crimson stains on the bathroom carpet, which proved impossible to shift and remain there over a year later.

Our garden's harvest of beetroot was good in 2004, and we had eaten some the day before the nose bleed. It dawned on us that, on its way to staining urine, the pigment in beetroot might stain blood as well. Had the observation been made before? Was beethaemia a well recognised phenomenon that had passed us by?

Investigating the stain

A Medline search using the terms "beetroot AND blood", with no limits, yielded five articles (compared with a heartsinking 27 100 using Google). "Beetroot AND urine" yielded 11, one of which had appeared in the first list. "Beethaemia" (with or without the first "a") appeared to be our own neologism.

Many of the Google entries declared that beetroot was good for the blood as it contained lots of iron and folic acid. The papers identified by Medline offered statistics and terminology. Between 10% and 14% of people display (in the medical sense) beeturia and red faeces after eating beetroot.^{1 2}

The red beetroot pigment is called betalaine, a redox indicator whose colour is preserved by reducing agents,¹ and a member of a class of chemicals called betacyanins.¹ Beeturia is said to occur most commonly in the presence of iron deficiency and malabsorption.¹ Both hydrochloric acid and ferric ions decolourise betalaine, but ingestion of oxalic acid with betalaine made even non-beeturic subjects produce red urine.² Beetroot itself is high in oxalate,³ and betalaines are natural antioxidants.⁴

Feeding beetroot to people with ileostomies resulted in bright red effluent from the ileostomy, but no beeturia, which suggests that betalaine is absorbed by the colon.² Neither Eastwood and Nyhlin nor Mitchell mentions the passage of the pigment in blood on its way to the kidneys.^{2 5} Watts and colleagues say that intravenous injection of beetroot extract into

anaesthetised rats showed that 80% of the dose was cleared by renal excretion, but they do not mention the blood.¹

Discussion

Indelible staining resulted from blood spilt from a boy who had recently eaten beetroot. The lesson is clear: do not feed beetroot to children prone to nose bleeds if you value your carpets.

No assays have tested our hypothesis that the tenacious fluid was related to its betalaine content, but the stains remain, and a keen chemical pathologist is welcome to take specimens for testing. We are confident that the temporal relation and the colour and indelibility of the stains point to beetroot pigment as the cause.

We believe that the staining properties of beetroot-laden blood have not been noted before. Whether this sign should bear our name or that of Lady Macbeth is for posterity to determine.

Competing interests: None declared.

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Beetroot—loved and despised for its lasting red colour