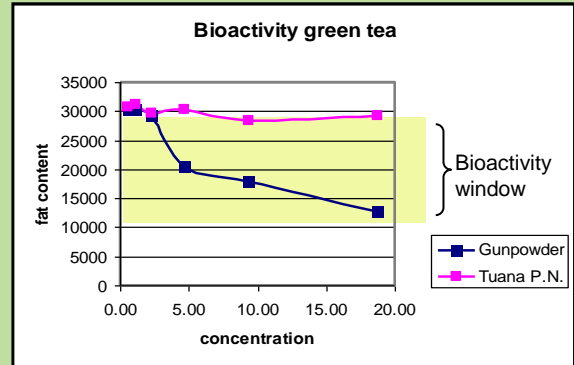
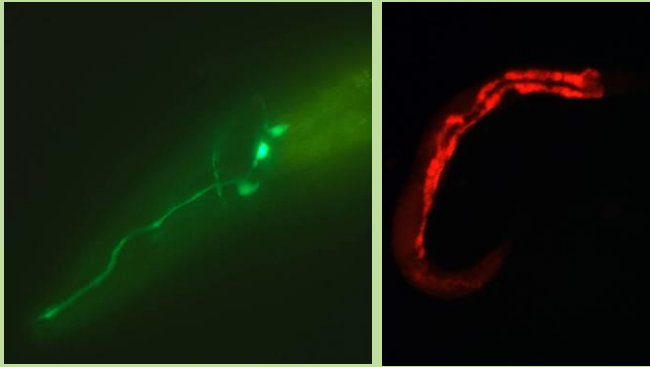


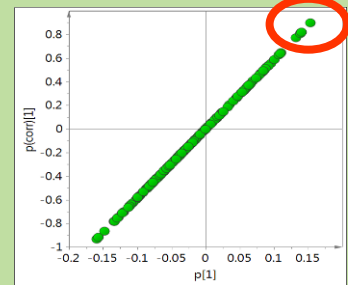
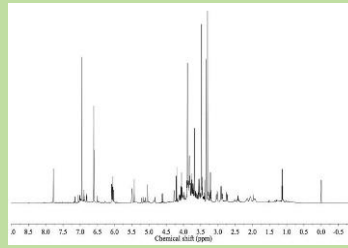
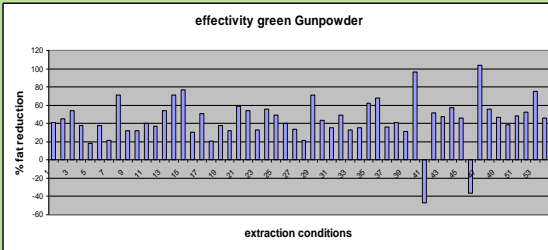
Identification of metabolites that are crucial for the bioactivity of medicinal plants

Case study: Green tea and anti obesity

First screening: *in vivo* effect of crude plant extract in the nematode *C.elegans*



Second screening: correlations between *in vivo* bioactivity and metabolites by variable extracts:



Application

- Quality control
- Breeding programs
- Cultivation protocols

Identified crucial compounds

epigallocatechin gallate
caffeine

validation

Catechin- and caffeine-rich teas for control of body weight in humans¹⁻⁴

Rick Hursel and Margriet S Westerbeek-Plantinga

ABSTRACT

Maintaining the level of daily energy expenditure during weight loss and weight maintenance is as important as maintaining safety while decreasing energy intake. In this context, different catechin- and caffeine-rich teas (CCRTs), such as green, oolong, and white teas, as well as caffeine have been proposed as tools for maintaining or enhancing energy expenditure and for increasing fat oxidation. Tea polyphenols have been proposed to counteract the decrease in metabolic rate that is usually present during weight loss. Their effects may be of particular importance during weight maintenance after weight loss. Although the thermogenic effect of CCRT has the po-

system (8-11). GT extracts containing caffeine and catechin polyphenols have been reported to have an effect on body weight (BW) (7, 12) and EE (12-14). The observation that GT stimulates EE cannot be completely attributed to its caffeine content because the thermogenic effect of GT extract containing caffeine and catechin polyphenols is greater than that of an equivalent amount of caffeine (13). Nevertheless, there are moderating factors that may limit the beneficial effects of catechin- and caffeine-rich teas (CCRTs), which should be taken into account in examining this benefit. Nonetheless, despite the presence of these factors, tea has been studied extensively and still seems promising with respect to