Formula Aim: To reduce general anxiety and over excitement without marked sedation. Reducing anxiety helps dogs cope with stressful situations, can improve the retraining of learned behavioural issues, improves conditioning and training outcomes.

The herbs that can assist are;

- reduction in subjective sensations of anxiety without measurable sedation (Valerian, Passion Flower, Lemon Balm, Bacopa)
- improving mood and calmness (Valerian, Lemon Balm, Bacopa)
- improving cognitive performance (Bacopa, Lemon Balm)

Valerian Root (Valeriana officinalis)

Valerian is well known for its sedative and sleep enhancing effects. Its application in humans is principally focussed on disorders of initiating sleep and problems in maintaining sleep. It is also used to treat states of anxiety as well as depressive moods. (Hendriks et al., 1981) Although over 150 constituents have been identified none appear to be solely responsible for Valerian’s effects supporting the theory that the constituents act synergistically. (Houghton et al., 1999).

Although Valerian’s sedative effect acts more as a nervous system depressant than as a muscle relaxant (Hattesohl et al., 2008), a double-blind trial found valerian reduced subjective sensations of anxiety and did not cause measurable sedation. (Kohnen & Oswald 1988)

There appear to be several areas of sedating activity:

- In the brain Valerian appears to bind to the GABA<sub>A</sub> receptor site (Cavadas et al., 1995 & Ortiz et al., 1999) producing a dose dependant release of the neurotransmitter GABA (Neuhaus et al., 2008),
- it inhibits enzyme induced GABA (gamma-aminobutyric acid) breakdown (Riedel et al., 1982), and
- a Valerian lignan has been found to bind to benzodiazepine receptors. (Bodesheim & Holzl 1997).

There is some speculation over Valerian’s inherent GABA content directly causing sedation, but there are reservations regarding bioavailability. (Cavadas et al., 1995, Santos et al., 1994).

Recent studies have concluded that Valerian or more precisely a constituent in Valerian root, valerenic acid binds to allosteric sites on the GABA<sub>A</sub> receptor complex and affect it in a positive manner, causing increased efficiency. (Johnston et al., 2006 and Trauner et al., 2006). Valerenic acid, is not only a marker for standardisation but also a potent activator of the GABA<sub>A</sub> receptor.
Several trials have confirmed the efficacy of Valerian as an effective anxiolytic but the biggest validation of its efficacy is its ban in competition.

**Lemon Balm Herb (Melissa officinalis)**

Lemon Balm has also been used in humans for its sedative and sleep enhancing effects, but it also improved mood and calmness in a group of normal volunteers. (Kennedy et al., 2002).

Although Lemon Balm appears to have a similar activity to Valerian and other anxiolytic herbs, it has been shown to inhibit GABA transaminase, the enzyme responsible for the degradation of GABA. In a study comparing different anxiolytic herbs Lemon Balm had the greatest inhibition of GABA-transaminase (Awad et al., 2007). Further research has identified the active constituent responsible for this inhibition. (Awad et al., 2009).

**Passionflower Herb (Passiflora incarnata)**

Yet another anxiolytic herb that has been used in humans for its sedative and sleep enhancing effects. In trial by Akhondzadeh et al., 2001 Passionflower was found to be as effective at reducing anxiety as oxazepam (a benzodiazepine used extensively for the treatment of anxiety and insomnia) but without the side effects of oxazepam.

Passionflower has been demonstrated to exert its anxiolytic effects via opioid and GABA benzodiazepine receptors. These anxiolytic effects are thought to be attributed to a specific benzoflavone compound.

**Bacopa Herb (Bacopa monniera)**

Bacopa a traditional Ayurvedic herb has been used for its anxiolytic effect for thousands of years. Although the anxiolytic effects are not completely understood Bacopa plays a role in mediating calcium-ion influx.

The use of Bacopa as an anxiolytic in a dose dependant manner is supported by several research trials. A trial using the syrup of Bacopa by Singh et al., 1980 resulted in a significant decrease in anxiety symptoms, level of anxiety, level of disability, and mental fatigue, and an increase in immediate memory span.

Research by Bhattacharya et al., 1998 demonstrated the extract of Bacopa exerted an anxiolytic activity similar to lorazepam (a benzodiazepine used in the treatment of anxiety). Interestingly it also had a memory-enhancing effect rather than inducing amnesia, a side effect of lorazepam.

Another trial by Stough et al., 2001, studying Bacopa’s effect on cognitive function found significant improvement in anxiety. They found its effect was more pronounced after 12 weeks compared to five weeks.

In a further trial Calabrese et al., 2008 found subjects taking Bacopa experienced significant improvement in anxiety compared to placebo, with additional improvements in cognitive performance and depression scores.

**References:**


