Interactions found!

JUNIPER <<interacts with>> (click view details) Hide Details

Interaction Rating = **Moderate** Be cautious with this combination.

ANTIDIABETES DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, taking juniper berry with antidiabetes medications might cause additive hypoglycemia.
Animal research shows that juniper berry can lower blood glucose (4,10580,14907).

DIURETIC DRUGS

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = **D**
Theoretically, juniper berry might increase the risk of adverse effects from diuretic drugs.
Juniper berry is thought to have mild diuretic effects (4,512).

LITHIUM

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = **D**
Theoretically, juniper berry might reduce lithium excretion and increase serum levels of lithium.
Juniper berry is thought to have mild diuretic effects (4,512).

JUNIPER contained in "Juniperus Communis (Globule) by Boiron Canada Inc" <<interacts with>> (click view details) Hide Details

Interaction Rating = **Moderate** Be cautious with this combination.

ANTIDIABETES DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, taking juniper berry with antidiabetes medications might cause additive hypoglycemia.
Animal research shows that juniper berry can lower blood glucose (4,10580,14907).

DIURETIC DRUGS

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = **D**
Theoretically, juniper berry might increase the risk of adverse effects from diuretic drugs.
Juniper berry is thought to have mild diuretic effects (4,512).

LITHIUM

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = **D**
Theoretically, juniper berry might reduce lithium excretion and increase serum levels of lithium.
Juniper berry is thought to have mild diuretic effects (4,512).

LICORICE <<interacts with>> (click view details) Hide Details

Interaction Rating = **Moderate** Be cautious with this combination.

ANTIHYPERTENSIVE DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **B**
Theoretically, licorice might reduce the effects of antihypertensive drugs.
In human research, licorice increases blood pressure in a dose-dependent manner (1372,7620,59877).

CISPLATIN (Platinol-AQ)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, licorice might reduce the effects of cisplatin.
In animal research, licorice diminished the therapeutic efficacy of cisplatin (59763).

CORTICOSTEROIDS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**

Theoretically, concomitant use of licorice and corticosteroids might increase the side effects of corticosteroids.
Case reports suggest that concomitant use of licorice and oral corticosteroids, such as hydrocortisone, can potentiate the duration of activity and increase blood levels of corticosteroids (3252,12672,20040,20042,48429,59756). Additionally, in one case report, a patient with neurogenic orthostatic hypertension stabilized on fludrocortisone 0.1 mg twice daily developed pseudohyperaldosteronism after recent consumption of large amounts of black licorice (108568).

CYTOCHROME P450 2B6 (CYP2B6) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase levels of drugs metabolized by CYP2B6.
In vitro research shows that licorice extract and glabridin, a licorice constituent, inhibit CYP2B6 isoenzymes (10300,94822). Licorice extract from the species G. uralensis seems to inhibit CYP2B6 isoenzymes to a greater degree than G. glabra extract in vitro (94822). Theoretically, these species of licorice might increase levels of drugs metabolized by CYP2B6; however, these interactions have not yet been reported in humans.

CYTOCHROME P450 2C19 (CYP2C19) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase levels of drugs metabolized by CYP2C19.
In vitro, licorice extracts from the species G. glabra and G. uralensis inhibit CYP2C19 isoenzymes in vitro (94822). Theoretically, these species of licorice might increase levels of drugs metabolized by CYP2C19; however, this interaction has not yet been reported in humans.

CYTOCHROME P450 2C8 (CYP2C8) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase levels of drugs metabolized by CYP2C8.
In vitro, licorice extract from the species G. glabra and G. uralensis inhibits CYP2C8 isoenzymes (94822). Theoretically, these species of licorice might increase levels of drugs metabolized by CYP2C8; however, this interaction has not yet been reported in humans.

CYTOCHROME P450 2C9 (CYP2C9) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase or decrease levels of drugs metabolized by CYP2C9.
There is conflicting evidence about the effect of licorice on CYP2C9 enzyme activity. In vitro research shows that extracts from the licorice species G. glabra and G. uralensis moderately inhibit CYP2C9 isoenzymes (10300,94822). However, evidence from an animal model shows that licorice extract from the species G. uralensis can induce hepatic CYP2C9 activity (14441). Until more is known, licorice should be used cautiously in people taking CYP2C9 substrates.

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **B**

Theoretically, licorice might increase or decrease levels of drugs metabolized by CYP3A4.
Pharmacokinetic research shows that the licorice constituent glycyrrhizin, taken in a dosage of 150 mg orally twice daily for 14 days, modestly decreases the area under the concentration-time curve of midazolam by about 20%. Midazolam is a substrate of CYP3A4, suggesting that glycyrrhizin modestly induces CYP3A4 activity (59808). Animal research also shows that licorice extract from the species G. uralensis induces CYP3A4 activity (14441). However, licorice extract from G. glabra species appear to inhibit CYP3A4-induced metabolism of testosterone in vitro. It is thought that the G. glabra inhibits CYP3A4 due to its constituent glabridin, which is a moderate CYP3A4 inhibitor in vitro and not present in other licorice species (10300,94822). Until more is known, licorice should be used cautiously in people taking CYP3A4 substrates.

DIGOXIN (Lanoxin)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**

Theoretically, concomitant use of licorice with digoxin might increase the risk of cardiac toxicity.
Overuse or misuse of licorice with cardiac glycoside therapy might increase the risk of cardiac toxicity due to potassium loss (10393).

DIURETIC DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**

Theoretically, concomitant use of licorice with diuretic drugs might increase the risk of hypokalemia.
Overuse of licorice might compound diuretic-induced potassium loss (10393,20045,20046,59812). In one case report, a 72-year-old male with a past medical history of hypertension, type 2 diabetes, hyperlipidemia, arrhythmia, stroke, and hepatic dysfunction was hospitalized with severe hypokalemia and uncontrolled hypertension due to pseudohyperaldosteronism. This was thought to be provoked by concomitant daily consumption of a product containing 225 mg of glycyrrhizin, a constituent of licorice, and hydrochlorothiazide 12.5 mg for 1 month (108577).

ESTROGENS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase or decrease the effects of estrogen therapy.
Theoretically, licorice might interfere with estrogen therapy due to estrogenic and anti-estrogenic effects (7860,16058).

LOOP DIURETICS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, loop diuretics might increase the mineralocorticoid effects of licorice.
Theoretically, loop diuretics might enhance the mineralocorticoid effects of licorice by inhibiting the enzyme that converts cortisol to cortisone; however, bumetanide (Bumex) does not appear to have this effect (3255).

MIDAZOLAM (Versed)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **B**

Theoretically, licorice might decrease levels of midazolam.
In humans, the licorice constituent glycyrrhizin appears to moderately induce the metabolism of midazolam (59808). This is likely due to induction of cytochrome P450 3A4 by licorice. Until more is known, licorice should be used cautiously in people taking midazolam.

P-GLYCOPROTEIN SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might decrease the absorption of P-glycoprotein substrates.
In vitro research shows that licorice can increase P-glycoprotein activity (104561).

PACLITAXEL (Abraxane, Onxol)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might decrease plasma levels and clinical effects of paclitaxel.
Multiple doses of licorice taken concomitantly with paclitaxel might reduce the effectiveness of paclitaxel. Animal research shows that licorice 3 grams/kg given orally for 14 days before intravenous administration of paclitaxel decreases the exposure to paclitaxel and increases its clearance. Theoretically, this occurs because licorice induces cytochrome P450 3A4 enzymes, which metabolize paclitaxel. Notably, a single dose of licorice did not affect exposure or clearance of paclitaxel (102959).

WARFARIN (Coumadin)

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might decrease plasma levels and clinical effects of warfarin. Licorice seems to increase metabolism and decrease levels of warfarin in animal models. This is likely due to induction of cytochrome P450 2C9 (CYP2C9) metabolism by licorice (14441). Advise patients taking warfarin to avoid taking licorice.

CYTOCHROME P450 1A2 (CYP1A2) SUBSTRATES

Interaction Rating = **Minor** Be watchful with this combination.

Severity = Mild • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might decrease the levels and clinical effects of CYP1A2 substrates.
In vitro research shows that licorice induces CYP1A2 enzymes (111404).

METHOTREXATE (Trexall, others)

Interaction Rating = **Minor** Be watchful with this combination.

Severity = Moderate • Occurrence = Unlikely • Level of Evidence = **D**

Theoretically, licorice might increase levels of methotrexate.
Animal research suggests that intravenous administration of glycyrrhizin, a licorice constituent, and high-dose methotrexate may delay methotrexate excretion and increase systemic exposure, leading to transient elevations in liver enzymes and total bilirubin (108570). This interaction has not yet been reported in humans.

LICORICE (Glycyrrhiza glabra) contained in "Glycyrrhiza Glabra (Globule) by Boiron Canada Inc" <<interacts with>> (click view details) Hide Details

Interaction Rating = **Moderate** Be cautious with this combination.

ANTIHYPERTENSIVE DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = **B**

Theoretically, licorice might reduce the effects of antihypertensive drugs.
In human research, licorice increases blood pressure in a dose-dependent manner (1372,7620,59877).

CISPLATIN (Platinol-AQ)

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might reduce the effects of cisplatin.
In animal research, licorice diminished the therapeutic efficacy of cisplatin (59763).

CORTICOSTEROIDS

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = **D**

Theoretically, concomitant use of licorice and corticosteroids might increase the side effects of corticosteroids.
Case reports suggest that concomitant use of licorice and oral corticosteroids, such as hydrocortisone, can potentiate the duration of activity and increase blood levels of corticosteroids (3252,12672,20040,20042,48429,59756). Additionally, in one case report, a patient with neurogenic orthostatic hypertension stabilized on fludrocortisone 0.1 mg twice daily developed pseudohyperaldosteronism after recent consumption of large amounts of black licorice (108568).

CYTOCHROME P450 2B6 (CYP2B6) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase levels of drugs metabolized by CYP2B6.
In vitro research shows that licorice extract and glabridin, a licorice constituent, inhibit CYP2B6 isoenzymes (10300,94822). Licorice extract from the species G. uralensis seems to inhibit CYP2B6 isoenzymes to a greater degree than G. glabra extract in vitro (94822). Theoretically, these species of licorice might increase levels of drugs metabolized by CYP2B6; however, these interactions have not yet been reported in humans.

CYTOCHROME P450 2C19 (CYP2C19) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase levels of drugs metabolized by CYP2C19.
In vitro, licorice extracts from the species G. glabra and G. uralensis inhibit CYP2C19 isoenzymes in vitro (94822). Theoretically, these species of licorice might increase levels of drugs metabolized by CYP2C19; however, this interaction has not yet been reported in humans.

CYTOCHROME P450 2C8 (CYP2C8) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, licorice might increase levels of drugs metabolized by CYP2C8.
In vitro, licorice extract from the species G. glabra and G. uralensis inhibits CYP2C8 isoenzymes (94822). Theoretically, these species of licorice might increase levels of drugs metabolized by CYP2C8; however, this interaction has not yet been reported in humans.

CYTOCHROME P450 2C9 (CYP2C9) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, licorice might increase or decrease levels of drugs metabolized by CYP2C9.
There is conflicting evidence about the effect of licorice on CYP2C9 enzyme activity. In vitro research shows that extracts from the licorice species G. glabra and G. uralensis moderately inhibit CYP2C9 isoenzymes (10300,94822). However, evidence from an animal model shows that licorice extract from the species G. uralensis can induce hepatic CYP2C9 activity (14441). Until more is known, licorice should be used cautiously in people taking CYP2C9 substrates.

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **B**
Theoretically, licorice might increase or decrease levels of drugs metabolized by CYP3A4.
Pharmacokinetic research shows that the licorice constituent glycyrrhizin, taken in a dosage of 150 mg orally twice daily for 14 days, modestly decreases the area under the concentration-time curve of midazolam by about 20%. Midazolam is a substrate of CYP3A4, suggesting that glycyrrhizin modestly induces CYP3A4 activity (59808). Animal research also shows that licorice extract from the species G. uralensis induces CYP3A4 activity (14441). However, licorice extract from G. glabra species appear to inhibit CYP3A4-induced metabolism of testosterone in vitro. It is thought that the G. glabra inhibits CYP3A4 due to its constituent glabridin, which is a moderate CYP3A4 inhibitor in vitro and not present in other licorice species (10300,94822). Until more is known, licorice should be used cautiously in people taking CYP3A4 substrates.

DIGOXIN (Lanoxin)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**
Theoretically, concomitant use of licorice with digoxin might increase the risk of cardiac toxicity.
Overuse or misuse of licorice with cardiac glycoside therapy might increase the risk of cardiac toxicity due to potassium loss (10393).

DIURETIC DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**
Theoretically, concomitant use of licorice with diuretic drugs might increase the risk of hypokalemia.
Overuse of licorice might compound diuretic-induced potassium loss (10393,20045,20046,59812). In one case report, a 72-year-old male with a past medical history of hypertension, type 2 diabetes, hyperlipidemia, arrhythmia, stroke, and hepatic dysfunction was hospitalized with severe hypokalemia and uncontrolled hypertension due to pseudohyperaldosteronism. This was thought to be provoked by concomitant daily consumption of a product containing 225 mg of glycyrrhizin, a constituent of licorice, and hydrochlorothiazide 12.5 mg for 1 month (108577).

ESTROGENS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**

Theoretically, licorice might increase or decrease the effects of estrogen therapy.
Theoretically, licorice might interfere with estrogen therapy due to estrogenic and anti-estrogenic effects (7860,16058).

LOOP DIURETICS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, loop diuretics might increase the mineralocorticoid effects of licorice.
Theoretically, loop diuretics might enhance the mineralocorticoid effects of licorice by inhibiting the enzyme that converts cortisol to cortisone; however, bumetanide (Bumex) does not appear to have this effect (3255).

MIDAZOLAM (Versed)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **B**
Theoretically, licorice might decrease levels of midazolam.
In humans, the licorice constituent glycyrrhizin appears to moderately induce the metabolism of midazolam (59808). This is likely due to induction of cytochrome P450 3A4 by licorice. Until more is known, licorice should be used cautiously in people taking midazolam.

P-GLYCOPROTEIN SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, licorice might decrease the absorption of P-glycoprotein substrates.
In vitro research shows that licorice can increase P-glycoprotein activity (104561).

PACLITAXEL (Abraxane, Onxol)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, licorice might decrease plasma levels and clinical effects of paclitaxel.
Multiple doses of licorice taken concomitantly with paclitaxel might reduce the effectiveness of paclitaxel. Animal research shows that licorice 3 grams/kg given orally for 14 days before intravenous administration of paclitaxel decreases the exposure to paclitaxel and increases its clearance. Theoretically, this occurs because licorice induces cytochrome P450 3A4 enzymes, which metabolize paclitaxel. Notably, a single dose of licorice did not affect exposure or clearance of paclitaxel (102959).

WARFARIN (Coumadin)

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = High • Occurrence = Possible • Level of Evidence = **D**
Theoretically, licorice might decrease plasma levels and clinical effects of warfarin.
Licorice seems to increase metabolism and decrease levels of warfarin in animal models. This is likely due to induction of cytochrome P450 2C9 (CYP2C9) metabolism by licorice (14441). Advise patients taking warfarin to avoid taking licorice.

CYTOCHROME P450 1A2 (CYP1A2) SUBSTRATES

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = **D**
Theoretically, licorice might decrease the levels and clinical effects of CYP1A2 substrates.
In vitro research shows that licorice induces CYP1A2 enzymes (111404).

METHOTREXATE (Trexall, others)

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Moderate • Occurrence = Unlikely • Level of Evidence = **D**
Theoretically, licorice might increase levels of methotrexate.
Animal research suggests that intravenous administration of glycyrrhizin, a licorice constituent, and high-dose methotrexate may delay methotrexate excretion and increase systemic exposure, leading to transient elevations in liver enzymes and total bilirubin (108570). This interaction has not yet been reported in humans.

UVA URSI <<interacts with>> (click view details) Hide Details
Interaction Rating = **Moderate** Be cautious with this combination.

CYTOCHROME P450 2C19 (CYP2C19) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, uva ursi may decrease the metabolism of CYP2C19 substrates.
In vitro, uva ursi appears to inhibit cytochrome CYP2C19 (98550). This effect has not been reported in humans.

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, uva ursi may decrease the metabolism of CYP3A4 substrates.
In vitro, uva ursi appears to inhibit CYP3A4 (98550). This effect has not been reported in humans.

GLUCURONIDATED DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, uva ursi may increase levels of drugs metabolized by glucuronidation.
In vitro, uva ursi extract appears to strongly inhibit UDP-glucuronosyltransferase (UGT) 1A1 (UGT1A1). However, uva ursi extract does not appear to inhibit UGT1A1 in animal models (98549). This effect has not been reported in humans.

LITHIUM

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Probable • Level of Evidence = **D**
Theoretically, uva ursi may increase lithium levels, necessitating a decrease in dose.
Uva ursi may have diuretic properties (81637). Diuretics may increase lithium reabsorption with sodium in the proximal tubule of the kidney. Theoretically, uva ursi might reduce excretion and increase levels of lithium.

URINARY ACIDIFYING AGENTS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Effects of uva ursi in the urinary tract may be reduced by urinary acidifying agents.
Uva ursi seems to work best in alkaline urine. Theoretically, taking uva ursi with medications known to acidify the urine may decrease any effects of uva ursi on the urinary tract (19).

P-GLYCOPROTEIN SUBSTRATES

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = **D**
Theoretically, uva ursi may alter the levels of drugs transported by P-glycoprotein.
In vitro, uva ursi appears to inhibit the multi-drug transporter protein, P-glycoprotein (98550). This effect has not been reported in humans.

UVA URSI contained in "Arctostaphylos Uva Ursi by Wise Woman Herbals" <<interacts with>> (click view details)

Hide Details

Interaction Rating = **Moderate** Be cautious with this combination.

CYTOCHROME P450 2C19 (CYP2C19) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, uva ursi may decrease the metabolism of CYP2C19 substrates.
In vitro, uva ursi appears to inhibit cytochrome CYP2C19 (98550). This effect has not been reported in humans.

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**
Theoretically, uva ursi may decrease the metabolism of CYP3A4 substrates.
In vitro, uva ursi appears to inhibit CYP3A4 (98550). This effect has not been reported in humans.

GLUCURONIDATED DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Theoretically, uva ursi may increase levels of drugs metabolized by glucuronidation.
In vitro, uva ursi extract appears to strongly inhibit UDP-glucuronosyltransferase (UGT) 1A1 (UGT1A1). However, uva ursi extract does not appear to inhibit UGT1A1 in animal models (98549). This effect has not been reported in humans.

LITHIUM

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Probable • Level of Evidence = **D**

Theoretically, uva ursi may increase lithium levels, necessitating a decrease in dose. Uva ursi may have diuretic properties (81637). Diuretics may increase lithium reabsorption with sodium in the proximal tubule of the kidney. Theoretically, uva ursi might reduce excretion and increase levels of lithium.

URINARY ACIDIFYING AGENTS

Interaction Rating = **Moderate** Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = **D**

Effects of uva ursi in the urinary tract may be reduced by urinary acidifying agents. Uva ursi seems to work best in alkaline urine. Theoretically, taking uva ursi with medications known to acidify the urine may decrease any effects of uva ursi on the urinary tract (19).

P-GLYCOPROTEIN SUBSTRATES

Interaction Rating = **Minor** Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = **D**

Theoretically, uva ursi may alter the levels of drugs transported by P-glycoprotein. In vitro, uva ursi appears to inhibit the multi-drug transporter protein, P-glycoprotein (98550). This effect has not been reported in humans.

Disclaimer: Currently this does not check for drug-drug interactions. This is not an all-inclusive comprehensive list of potential interactions and is for informational purposes only. Not all interactions are known or well reported in the scientific literature, and new interactions are continually being reported. Input is needed from a qualified healthcare provider including a pharmacist before starting any therapy. Application of clinical judgement is necessary.

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